FIG. 1

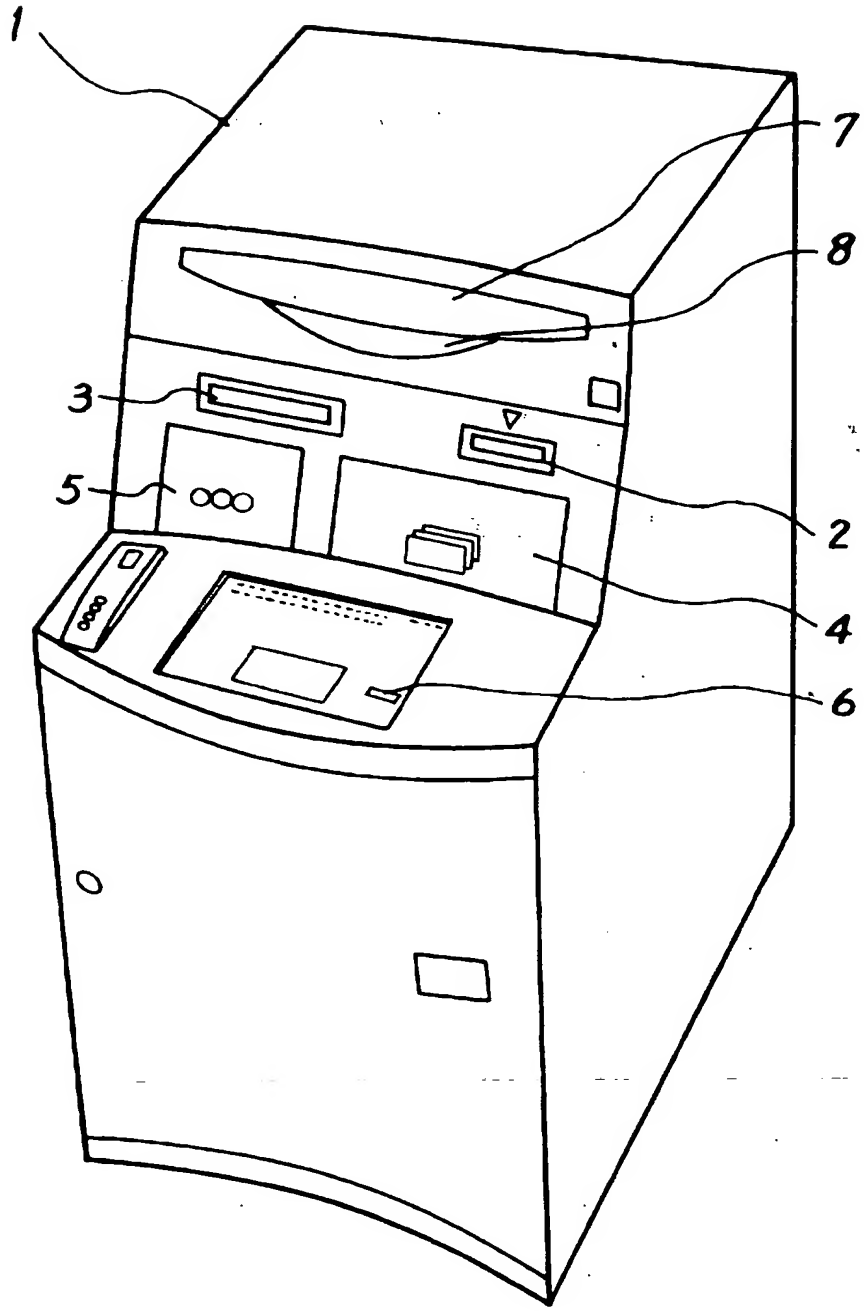


FIG. 2

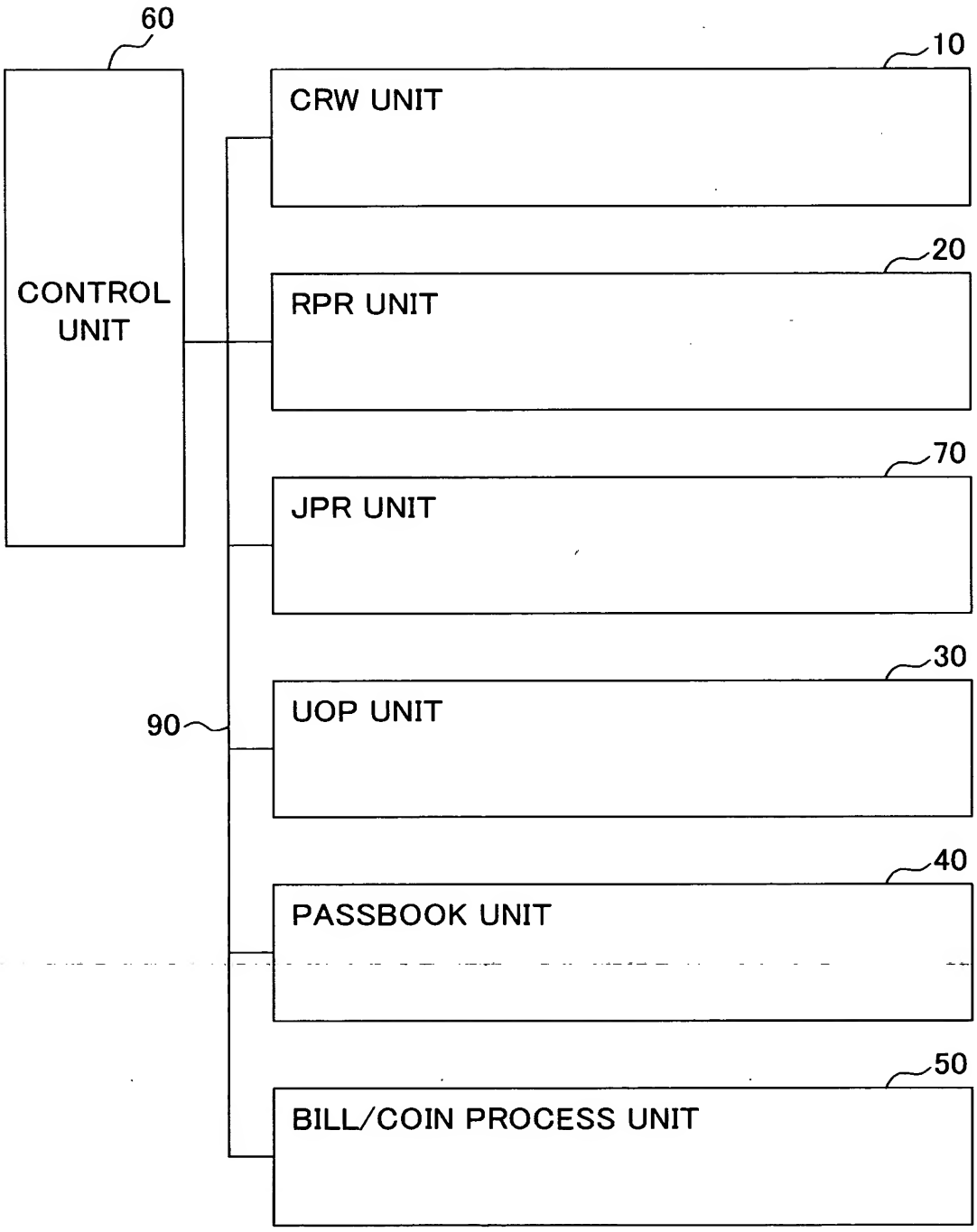

60
CONTROL UNIT
10
CRW UNIT
20
RPR UNIT
70
JPR UNIT
30
UOP UNIT
90
40
PASSBOOK UNIT
50
BILL/COIN PROCESS UNIT

FIG. 3

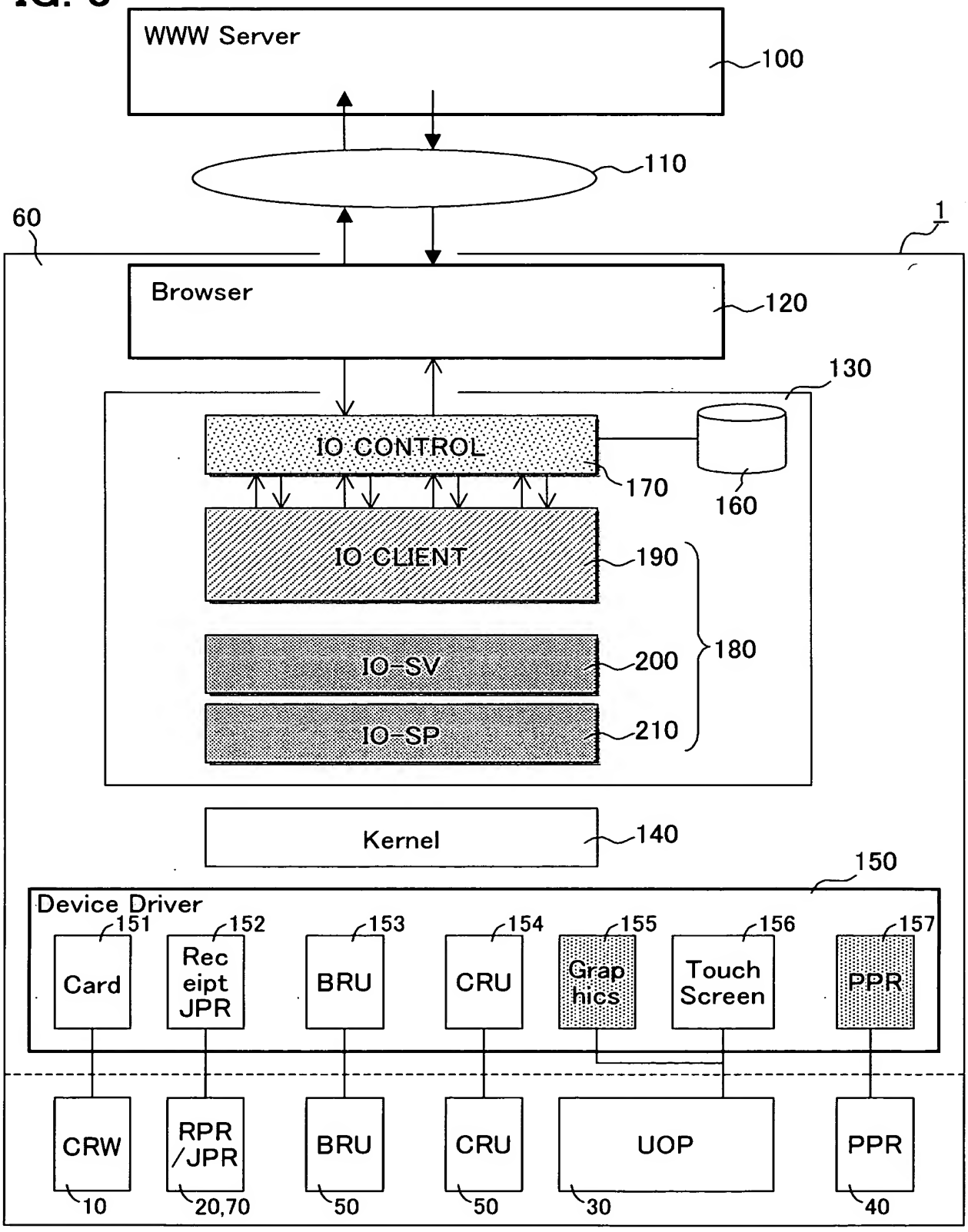

WWW Server
100
110
60
1
Browser
120
130
IO CONTROL
170
160
IO CLIENT
190
180
IO-SV
200
IO-SP
210
Kernel
140
150
Device Driver
151
152
153
154
155
156
157
Card
Rec eipt JPR
BRU
CRU
Grap hics
Touch Screen
PPR
CRW
RPR /JPR
BRU
CRU
UOP
PPR
10
20,70
50
50
30
40

FIG. 4

COMMAND TYPE	COMMAND
CRW COMMAND	CARD INSERTION
	CARD EJECT
RPR COMMAND	PRINT
	RELEASE
PPR COMMAND	PASSBOOK INSERTION
	PRINT
	MS WRITE
	PASSBOOK EJECT
	AUTO TURN PAGE
BRU COMMAND (CRU COMMAND)	INITIALIZATION
	ACCEPTANCE/COUNTING
	STORE
	DEPOSIT RETURN
	FEED
	RELEASE
	CAPTURE
	TRANSPORT PATH CHECK
	JAM RESET

FIG. 5

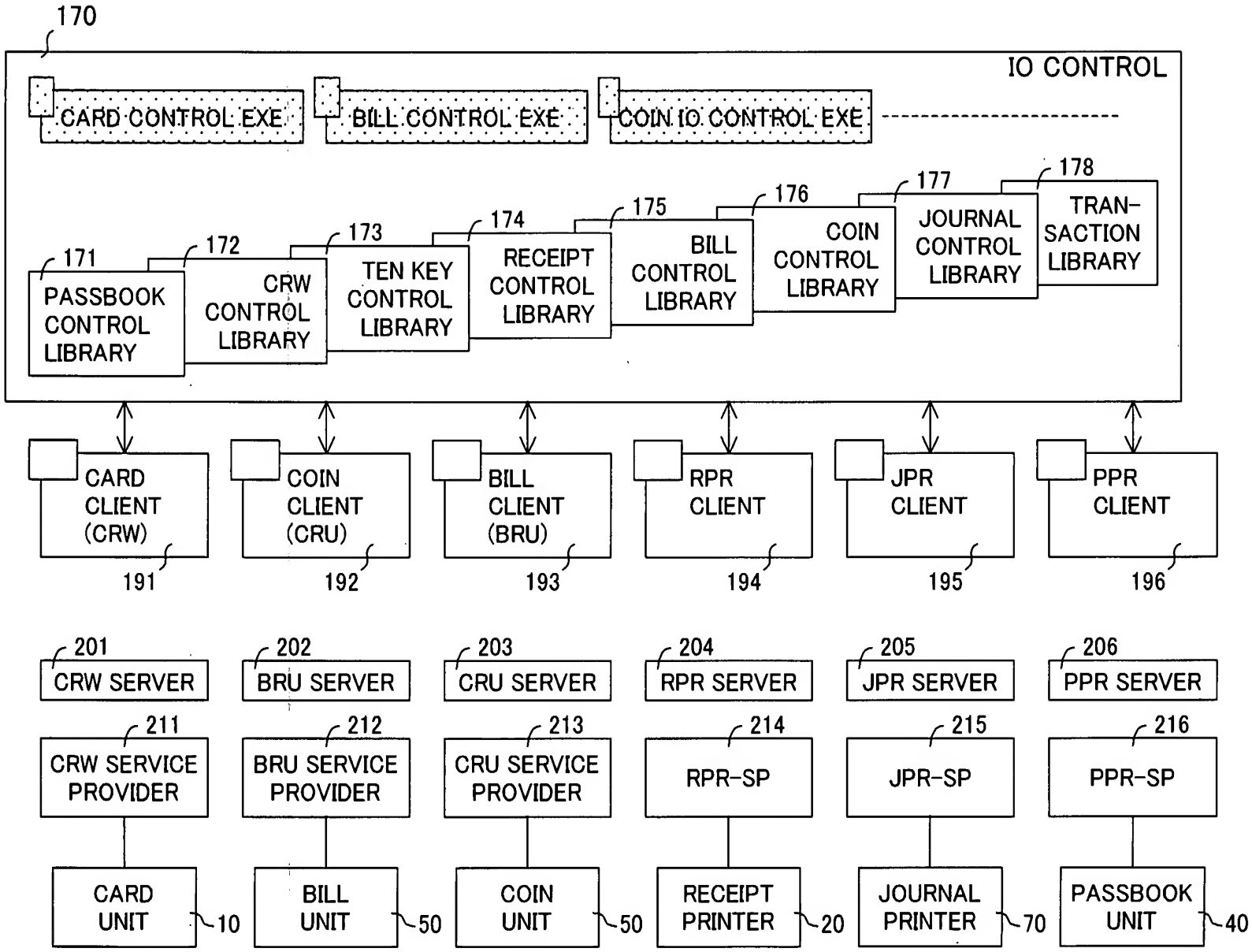

170
IO CONTROL
CARD CONTROL EXE
BILL CONTROL EXE
COIN IO CONTROL EXE
171
PASSBOOK CONTROL LIBRARY
172
CRW CONTROL LIBRARY
173
TEN KEY CONTROL LIBRARY
174
RECEIPT CONTROL LIBRARY
175
BILL CONTROL LIBRARY
176
COIN CONTROL LIBRARY
177
JOURNAL CONTROL LIBRARY
178
TRAN-SACTION LIBRARY
CARD CLIENT (CRW)
191
COIN CLIENT (CRU)
192
BILL CLIENT (BRU)
193
RPR CLIENT
194
JPR CLIENT
195
PPR CLIENT
196
201
CRW SERVER
202
BRU SERVER
203
CRU SERVER
204
RPR SERVER
205
JPR SERVER
206
PPR SERVER
211
CRW SERVICE PROVIDER
212
BRU SERVICE PROVIDER
213
CRU SERVICE PROVIDER
214
RPR-SP
215
JPR-SP
216
PPR-SP
CARD UNIT
10
BILL UNIT
50
COIN UNIT
50
RECEIPT PRINTER
20
JOURNAL PRINTER
70
PASSBOOK UNIT
40

FIG. 6

WITHDRAWAL TRANSACTION

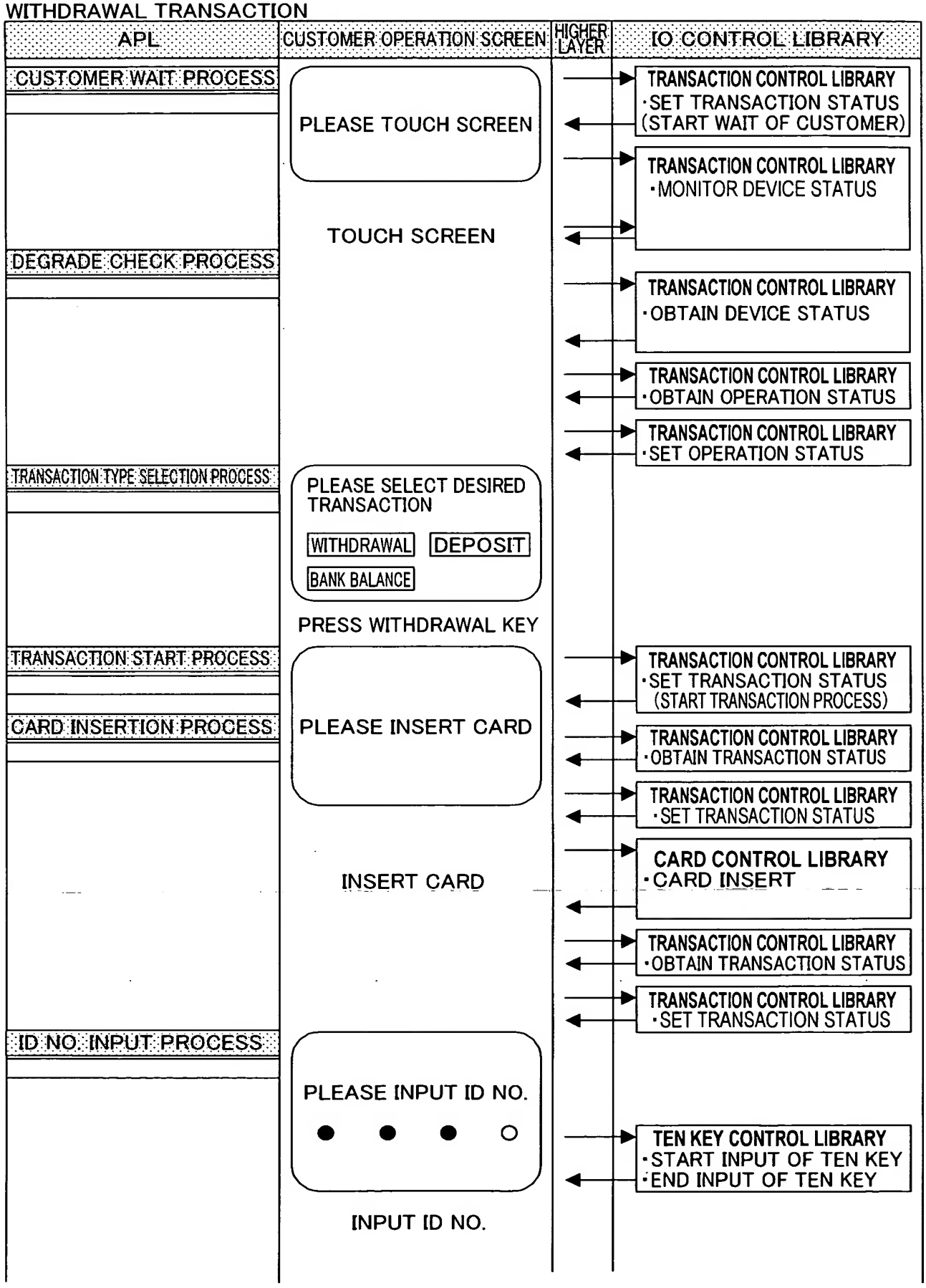


FIG. 7

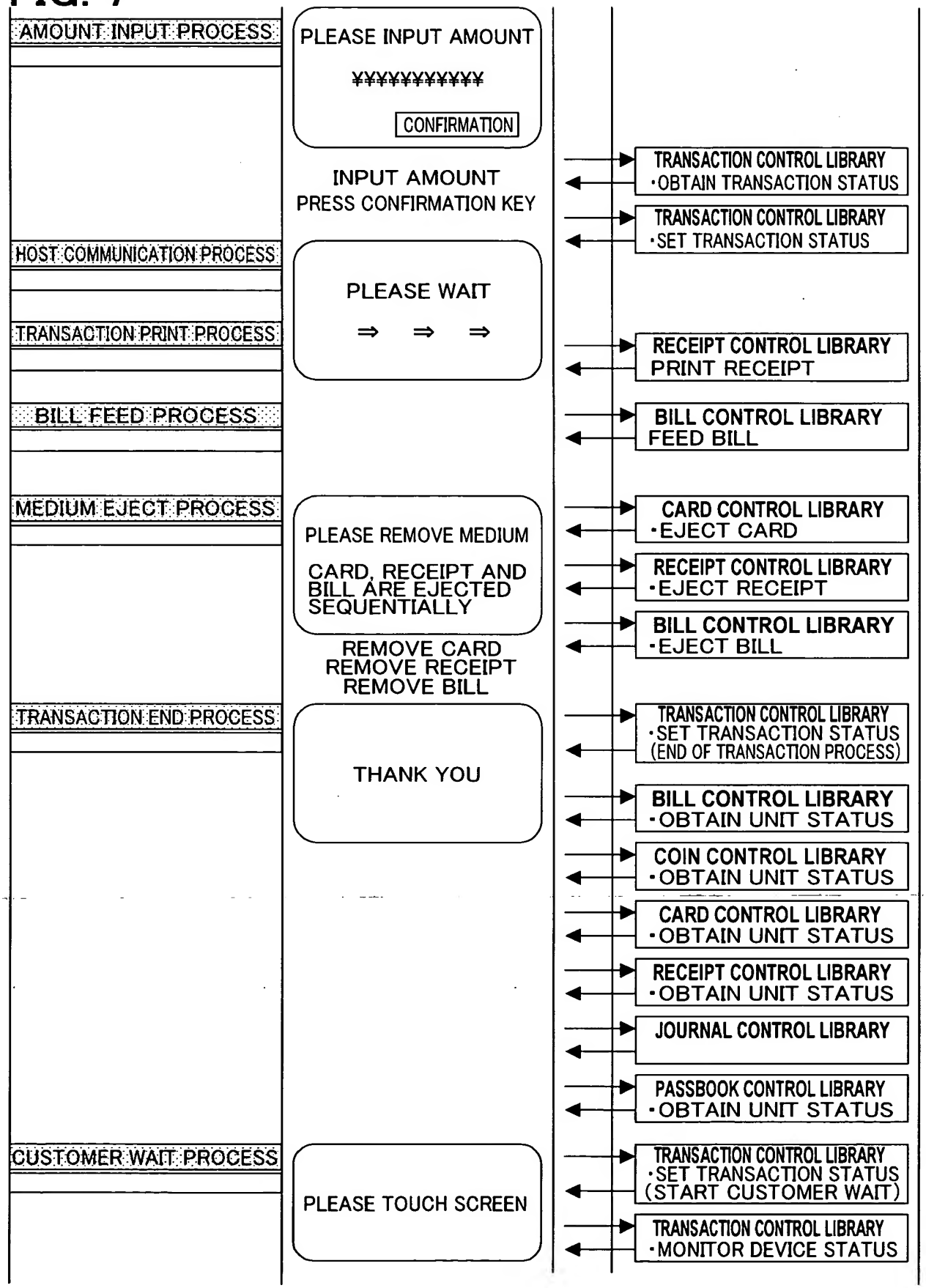

AMOUNT INPUT PROCESS
PLEASE INPUT AMOUNT
¥¥¥¥¥¥¥¥¥¥¥
CONFIRMATION
TRANSACTION CONTROL LIBRARY
·OBTAIN TRANSACTION STATUS
INPUT AMOUNT
PRESS CONFIRMATION KEY
TRANSACTION CONTROL LIBRARY
·SET TRANSACTION STATUS
HOST COMMUNICATION PROCESS
PLEASE WAIT
⇒ ⇒ ⇒
TRANSACTION PRINT PROCESS
RECEIPT CONTROL LIBRARY
PRINT RECEIPT
BILL FEED PROCESS
BILL CONTROL LIBRARY
FEED BILL
MEDIUM EJECT PROCESS
PLEASE REMOVE MEDIUM
CARD, RECEIPT AND BILL ARE EJECTED SEQUENTIALLY
CARD CONTROL LIBRARY
·EJECT CARD
RECEIPT CONTROL LIBRARY
·EJECT RECEIPT
BILL CONTROL LIBRARY
·EJECT BILL
REMOVE CARD
REMOVE RECEIPT
REMOVE BILL
TRANSACTION END PROCESS
THANK YOU
TRANSACTION CONTROL LIBRARY
·SET TRANSACTION STATUS
(END OF TRANSACTION PROCESS)
BILL CONTROL LIBRARY
·OBTAIN UNIT STATUS
COIN CONTROL LIBRARY
·OBTAIN UNIT STATUS
CARD CONTROL LIBRARY
·OBTAIN UNIT STATUS
RECEIPT CONTROL LIBRARY
·OBTAIN UNIT STATUS
JOURNAL CONTROL LIBRARY
PASSBOOK CONTROL LIBRARY
·OBTAIN UNIT STATUS
CUSTOMER WAIT PROCESS
PLEASE TOUCH SCREEN
TRANSACTION CONTROL LIBRARY
·SET TRANSACTION STATUS
(START CUSTOMER WAIT)
TRANSACTION CONTROL LIBRARY
·MONITOR DEVICE STATUS

FIG. 8

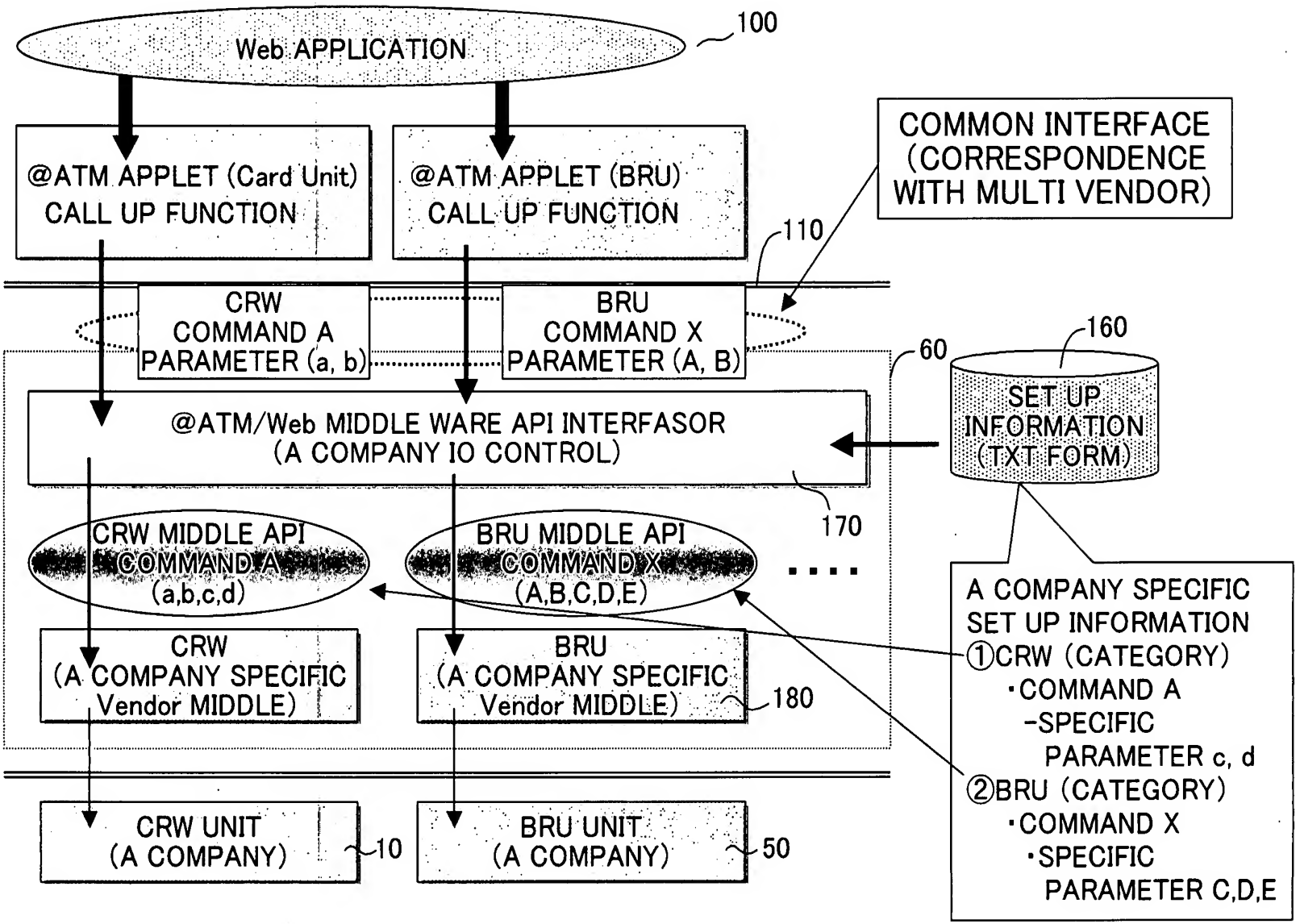

Web APPLICATION
100
@ATM APPLET (Card Unit) CALL UP FUNCTION
@ATM APPLET (BRU) CALL UP FUNCTION
COMMON INTERFACE (CORRESPONDENCE WITH MULTI VENDOR)
110
CRW COMMAND A PARAMETER (a, b)
BRU COMMAND X PARAMETER (A, B)
60
160
SET UP INFORMATION (TXT FORM)
@ATM/Web MIDDLE WARE API INTERFASOR (A COMPANY IO CONTROL)
170
CRW MIDDLE API COMMAND A (a,b,c,d)
BRU MIDDLE API COMMAND X (A,B,C,D,E)
CRW (A COMPANY SPECIFIC Vendor MIDDLE)
BRU (A COMPANY SPECIFIC Vendor MIDDLE)
180
A COMPANY SPECIFIC SET UP INFORMATION
①CRW (CATEGORY)
·COMMAND A
-SPECIFIC PARAMETER c, d
②BRU (CATEGORY)
·COMMAND X
·SPECIFIC PARAMETER C,D,E
CRW UNIT (A COMPANY)
10
BRU UNIT (A COMPANY)
50

FIG. 9

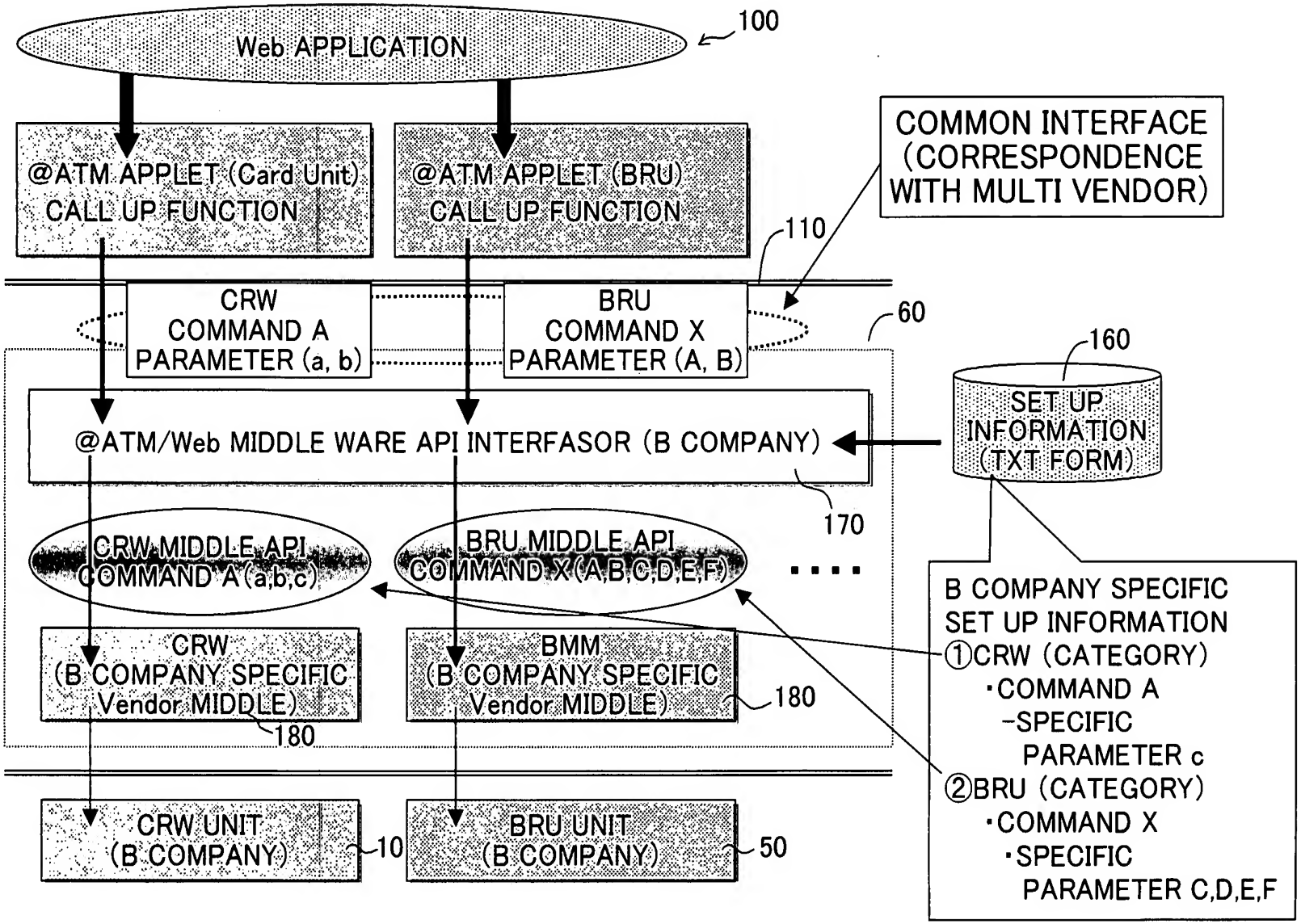

Web APPLICATION
100
@ATM APPLET (Card Unit) CALL UP FUNCTION
@ATM APPLET (BRU) CALL UP FUNCTION
COMMON INTERFACE (CORRESPONDENCE WITH MULTI VENDOR)
110
CRW COMMAND A PARAMETER (a, b)
BRU COMMAND X PARAMETER (A, B)
60
160
SET UP INFORMATION (TXT FORM)
@ATM/Web MIDDLE WARE API INTERFASOR (B COMPANY)
170
CRW MIDDLE API COMMAND A(a,b,c)
BRU MIDDLE API COMMAND X(A,B,C,D,E,F)
CRW (B COMPANY SPECIFIC Vendor MIDDLE)
180
BMM (B COMPANY SPECIFIC Vendor MIDDLE)
180
B COMPANY SPECIFIC SET UP INFORMATION
①CRW (CATEGORY)
・COMMAND A
-SPECIFIC PARAMETER c
②BRU (CATEGORY)
・COMMAND X
・SPECIFIC PARAMETER C,D,E,F
CRW UNIT (B COMPANY)
10
BRU UNIT (B COMPANY)
50

FIG. 10

ITEM	PROCESS	COMMON INTERFACE	VENDOR SPECIFIC INTERFACE
1	UNIT INITIALIZE PROCESS		PASSBOOK PRINTER USER TYPE CODE
2			PASSBOOK RIBBON NEAR END CHECK SPECIFICATION
3			PASSBOOK MS WRITE ERROR PAUSE SPECIFICATION
4			PASSBOOK PAGE MARK UP/DOWN USE SPECIFICATION
5			FORGOTTON PASSBOOK TAKE-IN/CLOSE SPECIFICATION
6	PASSBOOK INSERT PROCESS	INSERT MEDIUM LOGICAL TYPE SPECIFICATION	
7		PASSBOOK TYPE NO. SPECIFICATION	
8		W-MS CHANGE SPECIFICATION	
9		STRIPE POSITION SPECIFICATION	
10		MS ERASE SPECIFICATION	
11		SPECIFIED LINE POSITION SPECIFICATION	
12		COMPOSIT OPERATION SPECIFICATION	
13		CAMERA CONTROL SPECIFICATION	
14			MS POSITION
15			MS FORMAT
16			MS PARAMETER
17			LINE LAMP CONTROL DESIGNATION

FIG. 11

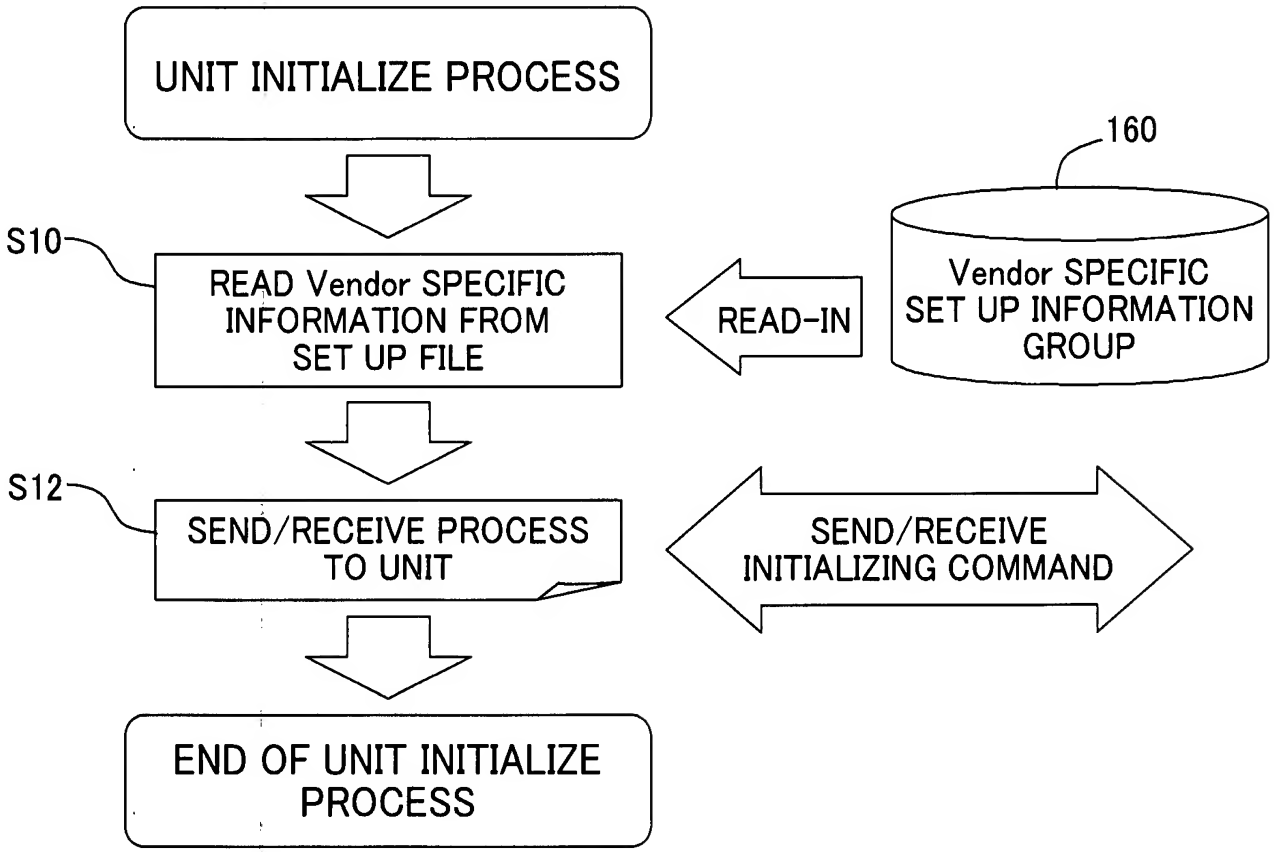

UNIT INITIALIZE PROCESS
160
S10
READ Vendor SPECIFIC INFORMATION FROM SET UP FILE
READ-IN
Vendor SPECIFIC SET UP INFORMATION GROUP
S12
SEND/RECEIVE PROCESS TO UNIT
SEND/RECEIVE INITIALIZING COMMAND
END OF UNIT INITIALIZE PROCESS

FIG. 12

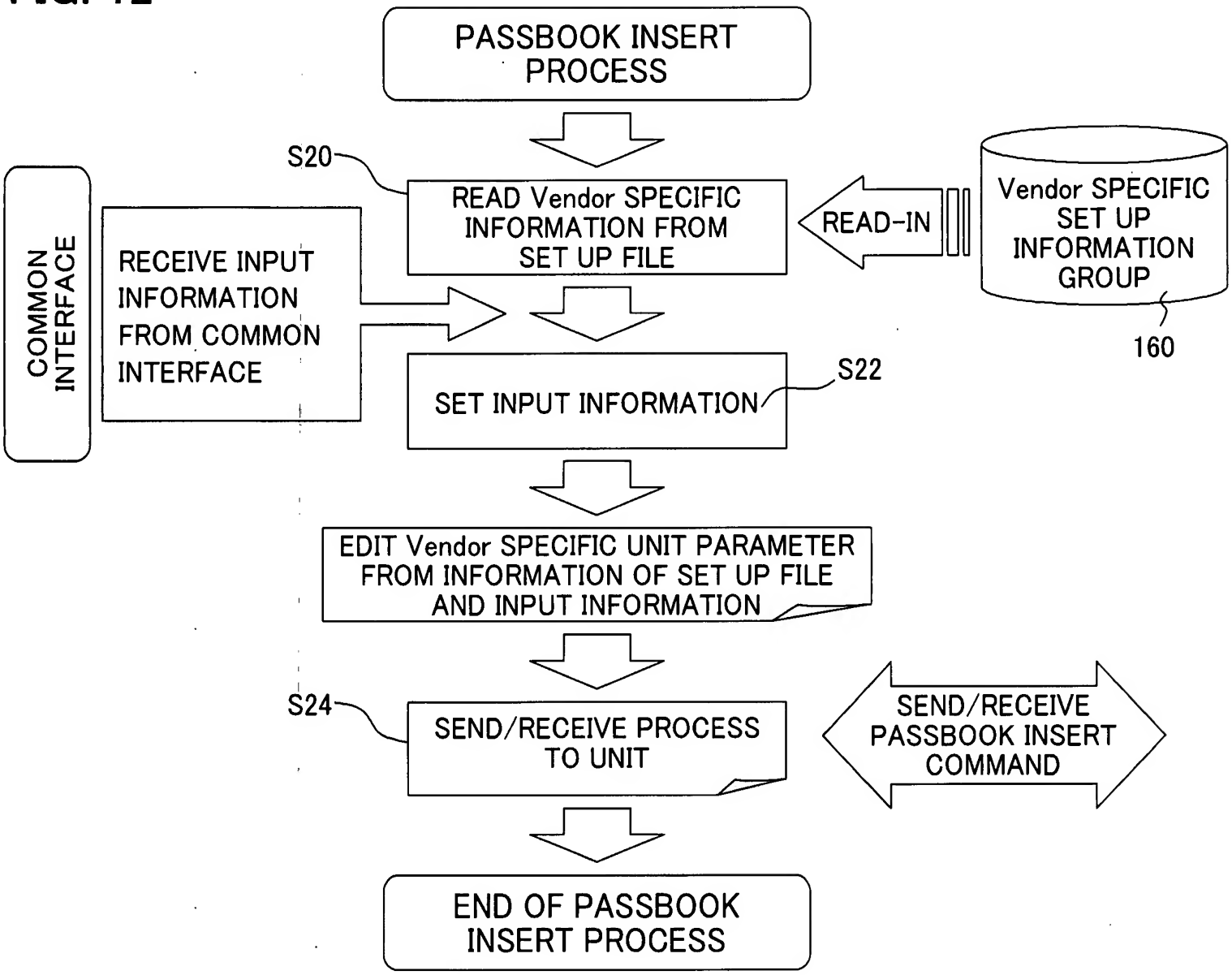

PASSBOOK INSERT PROCESS
S20
READ Vendor SPECIFIC INFORMATION FROM SET UP FILE
READ-IN
Vendor SPECIFIC SET UP INFORMATION GROUP
160
COMMON INTERFACE
RECEIVE INPUT INFORMATION FROM COMMON INTERFACE
SET INPUT INFORMATION
S22
EDIT Vendor SPECIFIC UNIT PARAMETER FROM INFORMATION OF SET UP FILE AND INPUT INFORMATION
S24
SEND/RECEIVE PROCESS TO UNIT
SEND/RECEIVE PASSBOOK INSERT COMMAND
END OF PASSBOOK INSERT PROCESS

FIG. 13

INITIALIZE	SPECIFY BASIC PARAMETER NECESSARY TO OPERATION OF INITIALIZE PROCESS IN CRW CLIENT
EJECT	SPECIFY NECESSARY PARAMETER WHEN EJECTING MEDIUM
CARD INSERT	SPECIFY NECESSARY PARAMETER WHEN INSERTING MEDIUM
MS WRITE	SPECIFY NECESSARY PARAMETER WHEN WRITING MAGNETIC DATA ON CARD MAGNETIC STRIPE
FORCED EJECT	SPECIFY NECESSARY PARAMETER WHEN FORCE-EJECTING MEDIUM
ISSUE	SPECIFY NECESSARY PARAMETER WHEN ISSUEING BANK TRANSFER CARD

FIG. 14

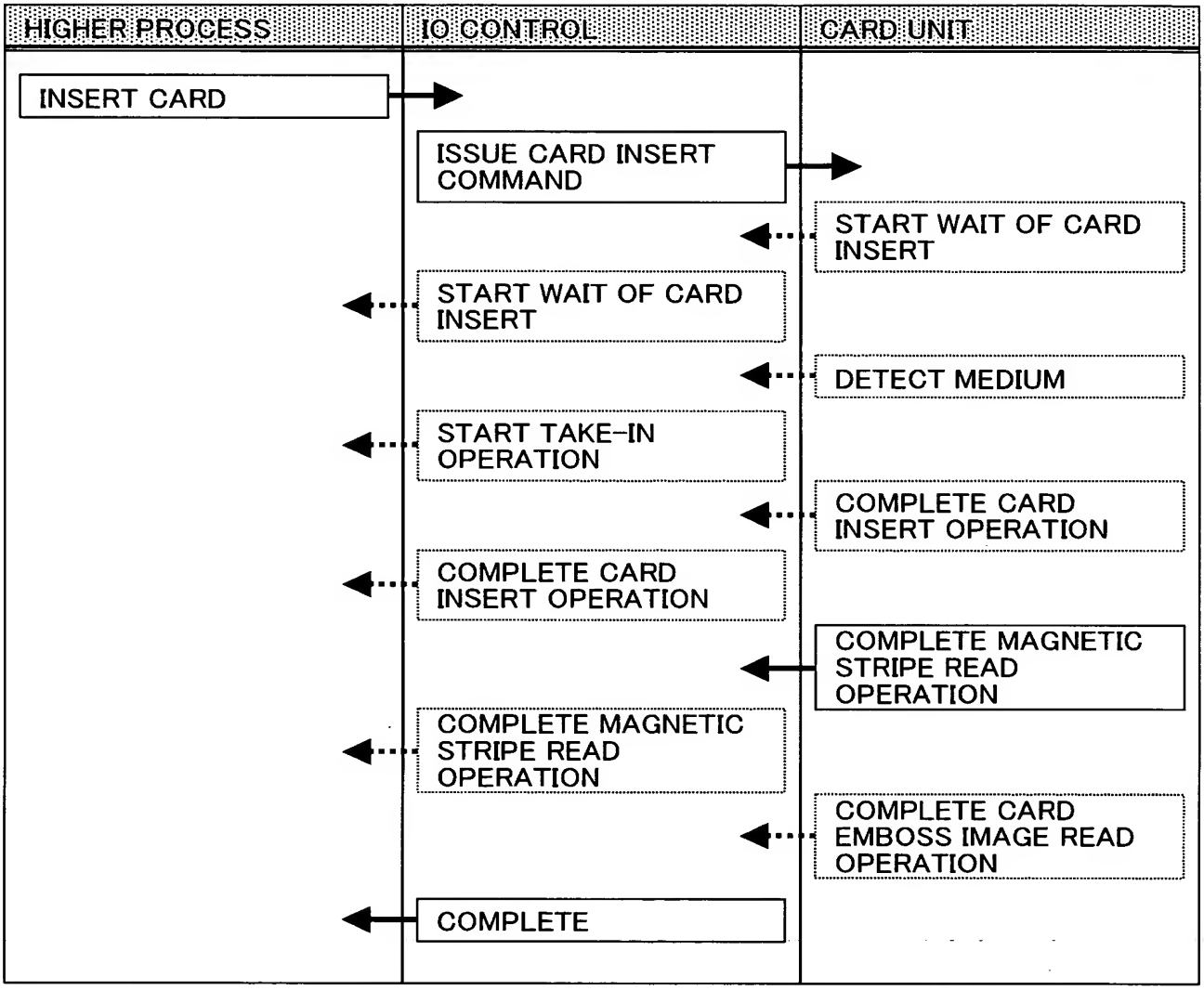

HIGHER PROCESS
IO CONTROL
CARD UNIT
INSERT CARD
ISSUE CARD INSERT COMMAND
START WAIT OF CARD INSERT
START WAIT OF CARD INSERT
DETECT MEDIUM
START TAKE-IN OPERATION
COMPLETE CARD INSERT OPERATION
COMPLETE CARD INSERT OPERATION
COMPLETE MAGNETIC STRIPE READ OPERATION
COMPLETE MAGNETIC STRIPE READ OPERATION
COMPLETE CARD EMBOSS IMAGE READ OPERATION
COMPLETE

FIG. 15

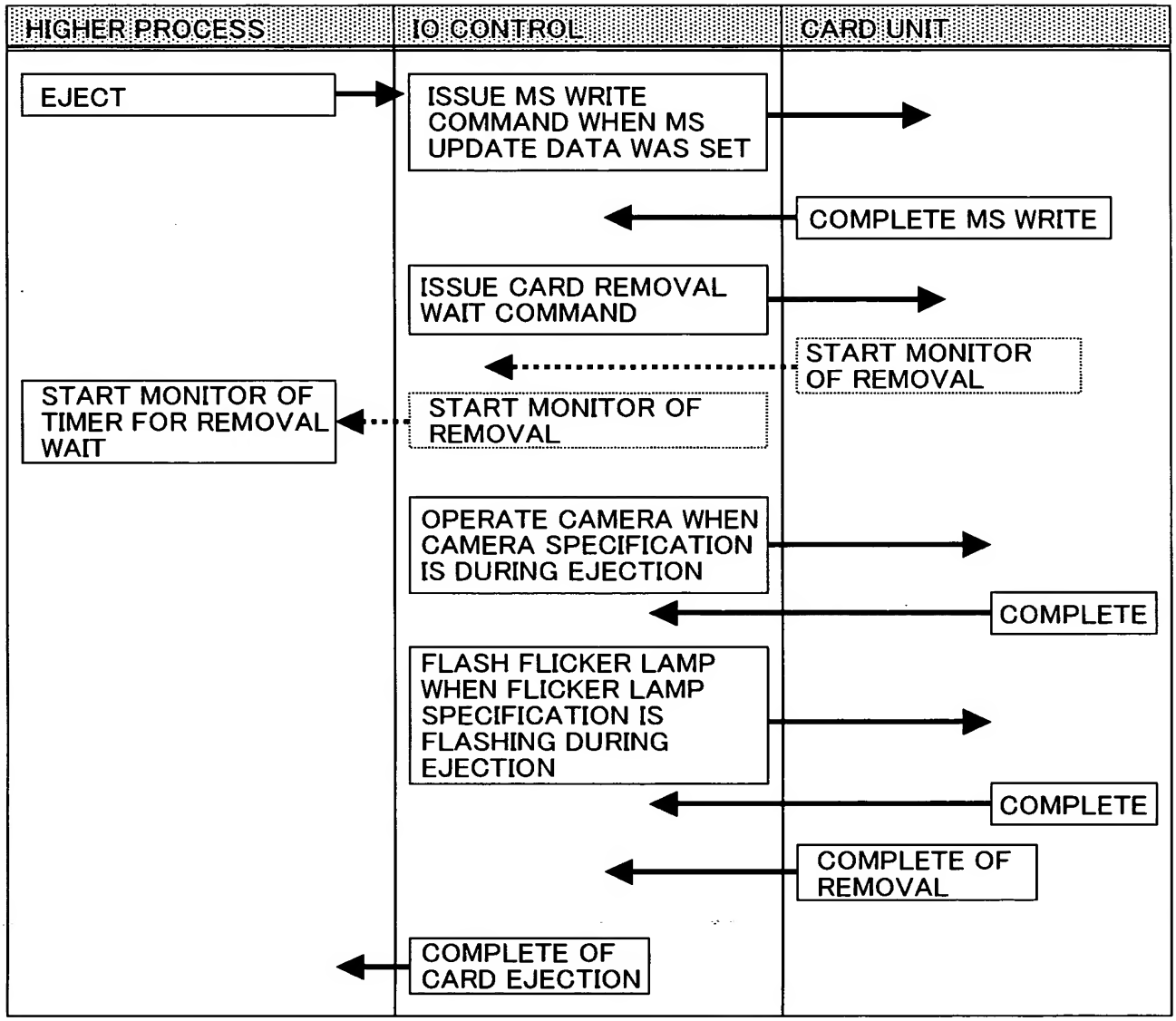

HIGHER PROCESS
IO CONTROL
CARD UNIT
EJECT
ISSUE MS WRITE COMMAND WHEN MS UPDATE DATA WAS SET
COMPLETE MS WRITE
ISSUE CARD REMOVAL WAIT COMMAND
START MONITOR OF REMOVAL
START MONITOR OF TIMER FOR REMOVAL WAIT
START MONITOR OF REMOVAL
OPERATE CAMERA WHEN CAMERA SPECIFICATION IS DURING EJECTION
COMPLETE
FLASH FLICKER LAMP WHEN FLICKER LAMP SPECIFICATION IS FLASHING DURING EJECTION
COMPLETE
COMPLETE OF REMOVAL
COMPLETE OF CARD EJECTION

FIG. 16

INITIALIZE	SPECIFY BASIC PARAMETER NECESSARY TO OPERATION OF NITIALIZE PROCESS IN BRU CLENT
BILL RECEIPT	SPECIFY NECESSARY PARAMETER WHEN WAITING INSERTION OF BILL
BILL COUNT	SPECIFY NECESSARY PARAMETER WHEN COUNTING/VALIDATING BILL
BILL RECEIPT/COUNT	SPECIFY NECESSARY PARAMETER WHEN WAITING INSERTION AND COUNTING BILL
BILL FEED	SPECIFY NECESSARY PARAMETER WHEN FEEDING, VALIDATING (COUNTING), STRONG BILL
BILL RELEASE	SPECIFY NECESSARY PARAMETER FOR RELEASE BILL AND SHUTTER CONTROL
CHECK TRANSPORT PATH	SPECIFY NECESSARY PARAMETER WHEN CHECKING RESIDUAL ON BRU TRANSPORT PATH
RESET JAM	SPECIFY NECESSARY PARAMETER WHEN COLLECTING JAMMED BILL ON BRU TRANSPORT PATH

FIG. 17

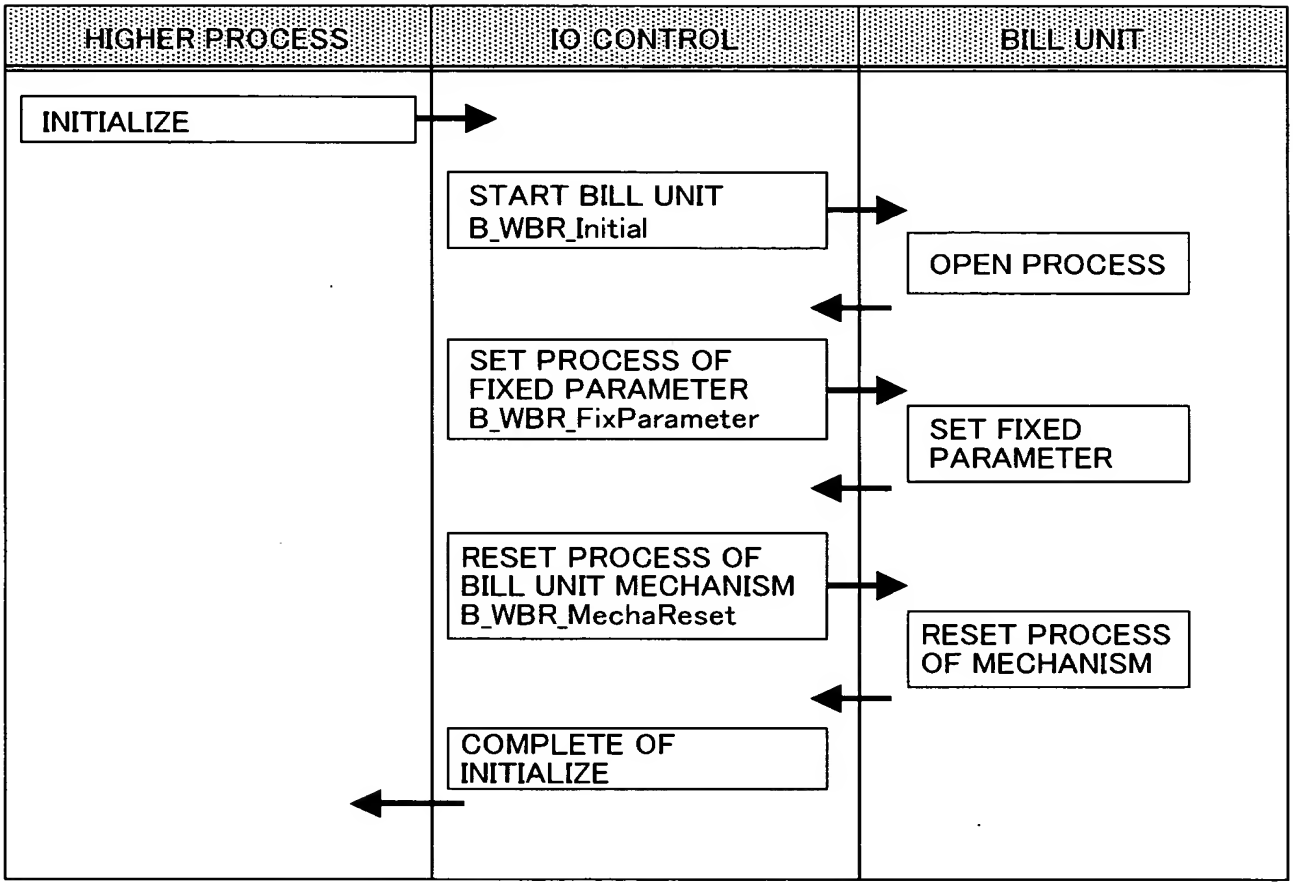

HIGHER PROCESS
IO CONTROL
BILL UNIT
INITIALIZE
START BILL UNIT
B_WBR_Initial
OPEN PROCESS
SET PROCESS OF
FIXED PARAMETER
B_WBR_FixParameter
SET FIXED
PARAMETER
RESET PROCESS OF
BILL UNIT MECHANISM
B_WBR_MechaReset
RESET PROCESS
OF MECHANISM
COMPLETE OF
INITIALIZE

FIG. 18

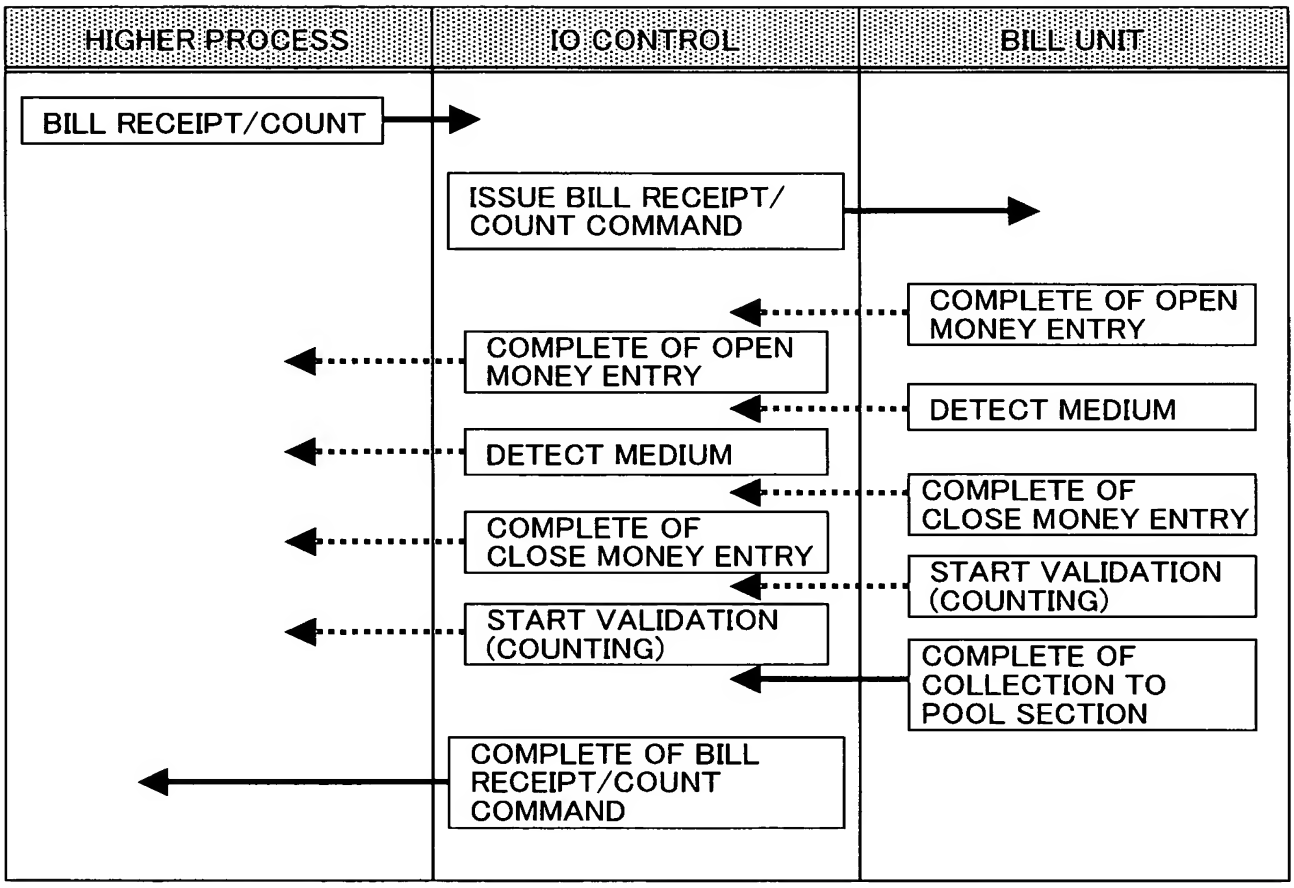

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL RECEIPT/COUNT
ISSUE BILL RECEIPT/ COUNT COMMAND
COMPLETE OF OPEN MONEY ENTRY
COMPLETE OF OPEN MONEY ENTRY
DETECT MEDIUM
DETECT MEDIUM
COMPLETE OF CLOSE MONEY ENTRY
COMPLETE OF CLOSE MONEY ENTRY
START VALIDATION (COUNTING)
START VALIDATION (COUNTING)
COMPLETE OF COLLECTION TO POOL SECTION
COMPLETE OF BILL RECEIPT/COUNT COMMAND

FIG. 19

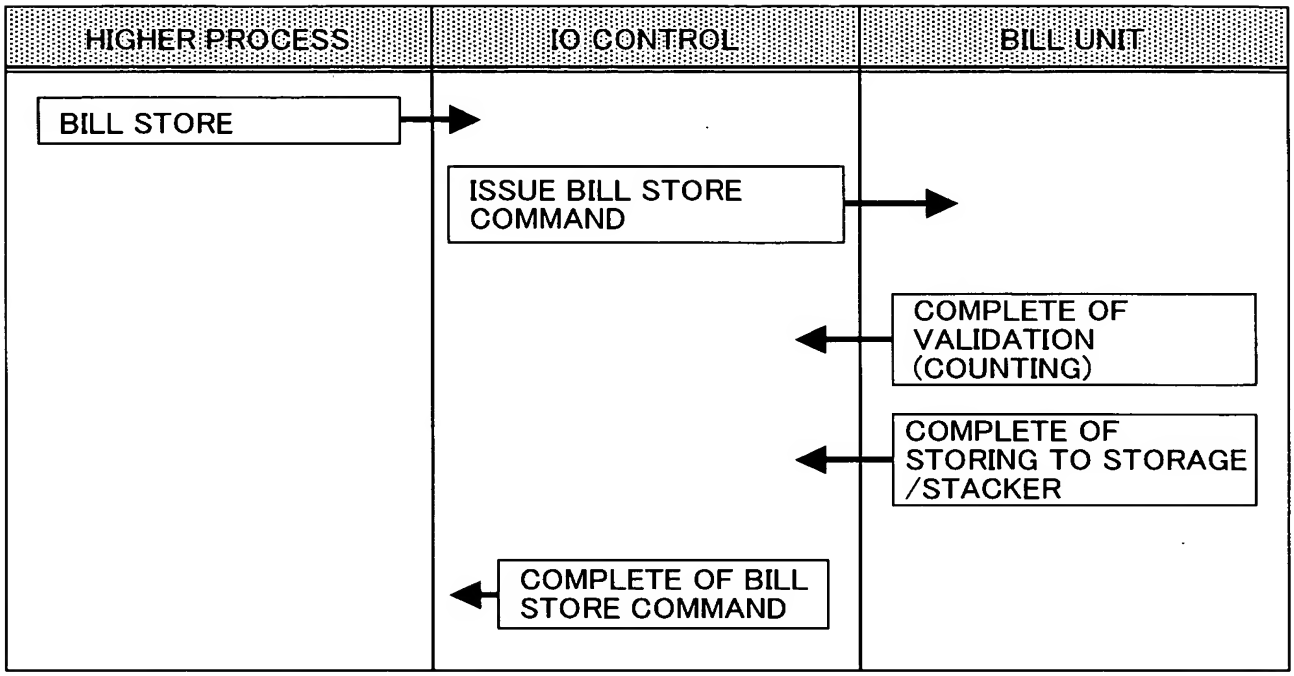

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL STORE
ISSUE BILL STORE COMMAND
COMPLETE OF VALIDATION (COUNTING)
COMPLETE OF STORING TO STORAGE /STACKER
COMPLETE OF BILL STORE COMMAND

FIG. 20

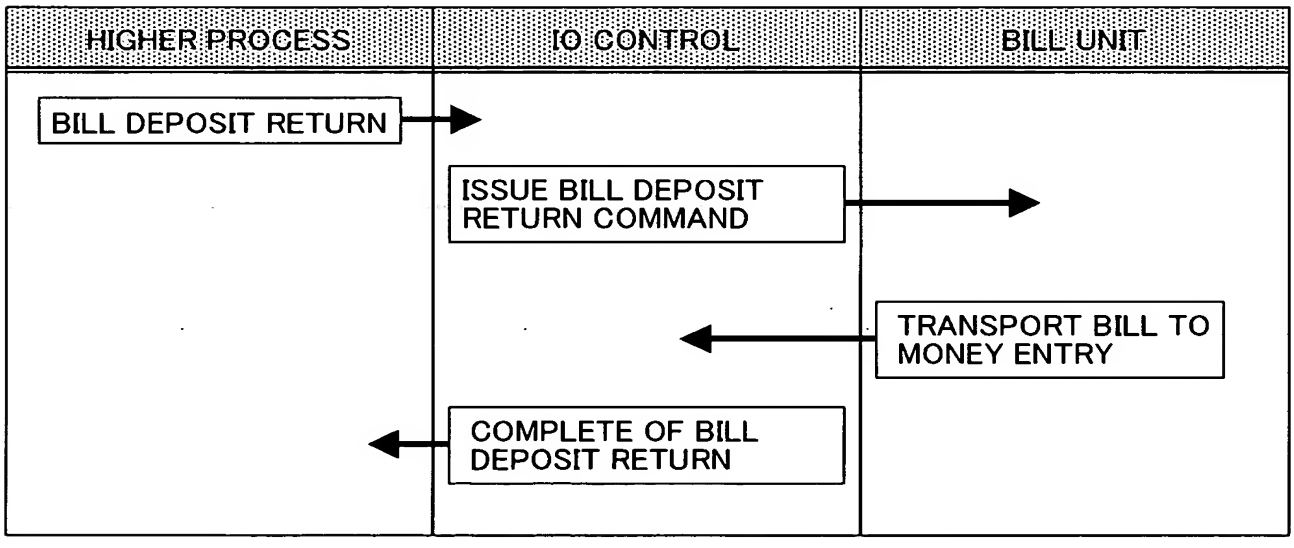

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL DEPOSIT RETURN
ISSUE BILL DEPOSIT RETURN COMMAND
TRANSPORT BILL TO MONEY ENTRY
COMPLETE OF BILL DEPOSIT RETURN

FIG. 21

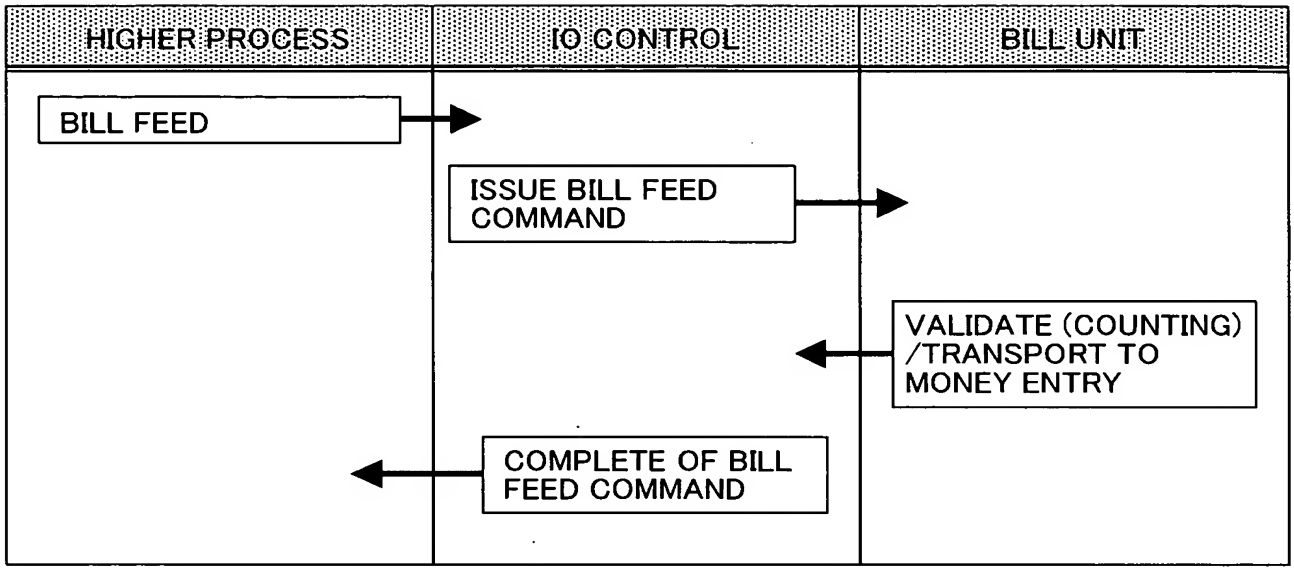

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL FEED
ISSUE BILL FEED COMMAND
VALIDATE (COUNTING) /TRANSPORT TO MONEY ENTRY
COMPLETE OF BILL FEED COMMAND

FIG. 22

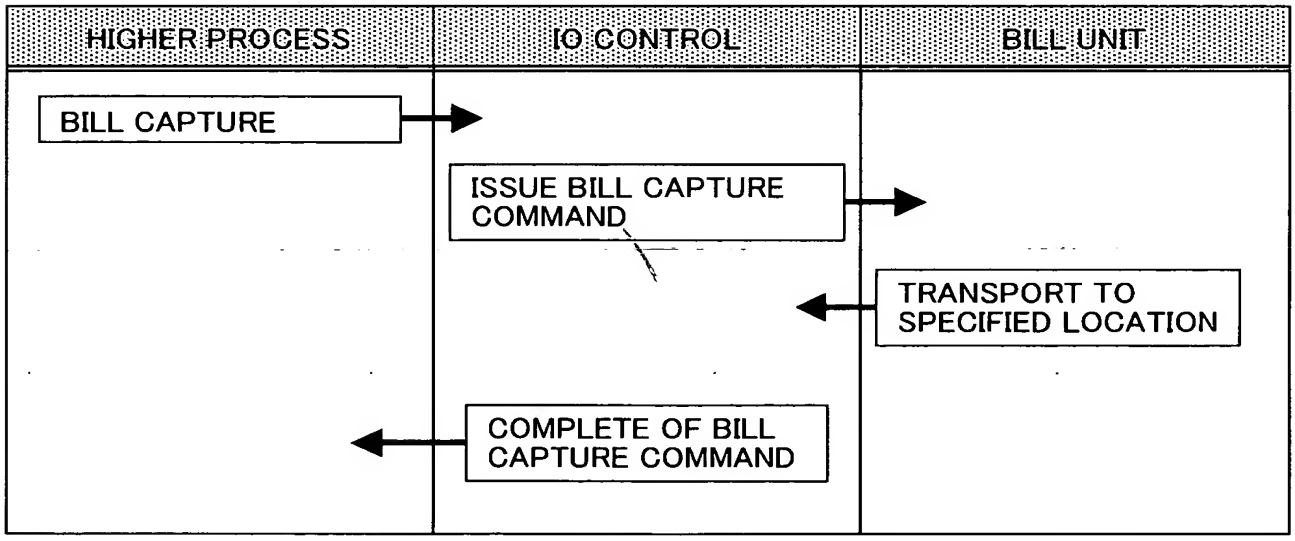

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL CAPTURE
ISSUE BILL CAPTURE COMMAND
TRANSPORT TO SPECIFIED LOCATION
COMPLETE OF BILL CAPTURE COMMAND

FIG. 23

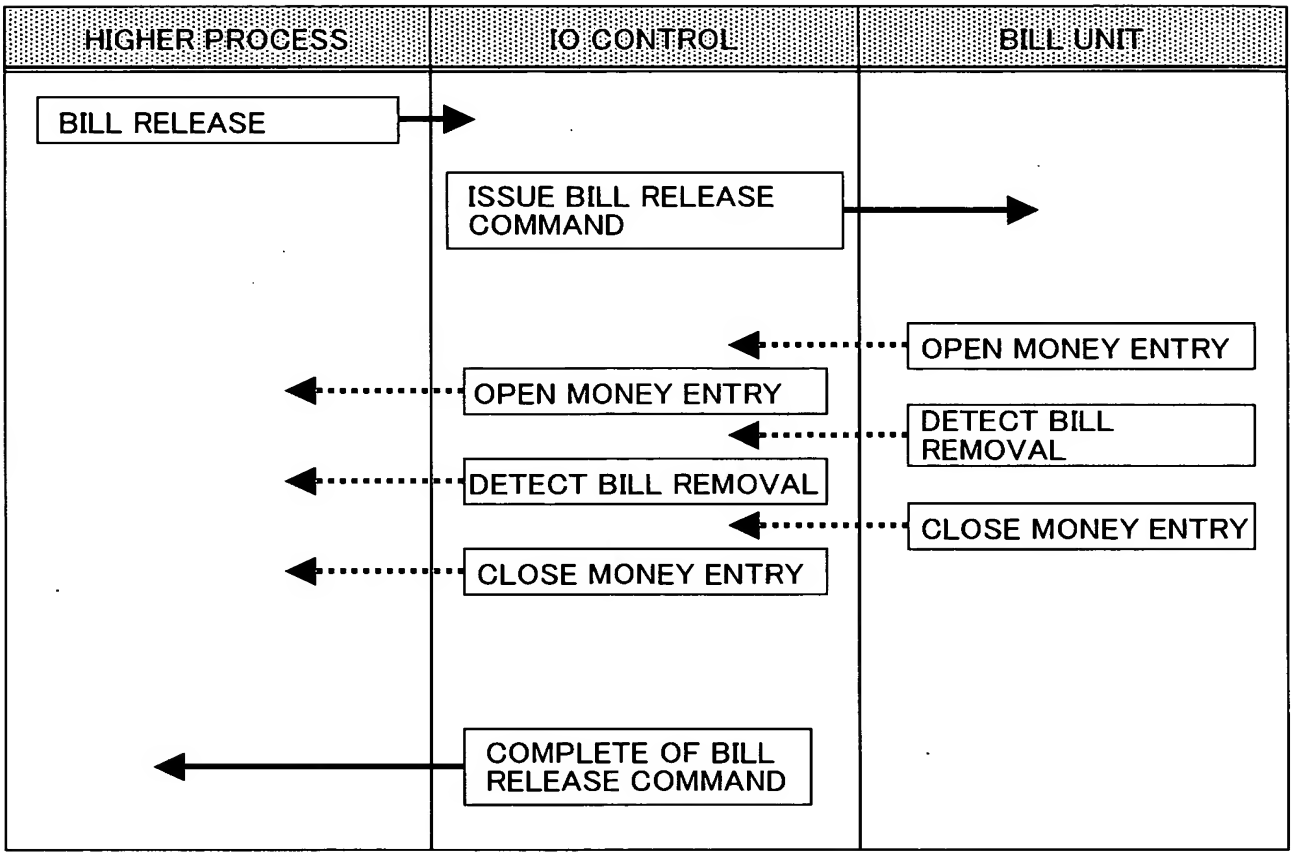

HIGHER PROCESS
IO CONTROL
BILL UNIT
BILL RELEASE
ISSUE BILL RELEASE COMMAND
OPEN MONEY ENTRY
OPEN MONEY ENTRY
DETECT BILL REMOVAL
DETECT BILL REMOVAL
CLOSE MONEY ENTRY
CLOSE MONEY ENTRY
COMPLETE OF BILL RELEASE COMMAND

FIG. 24

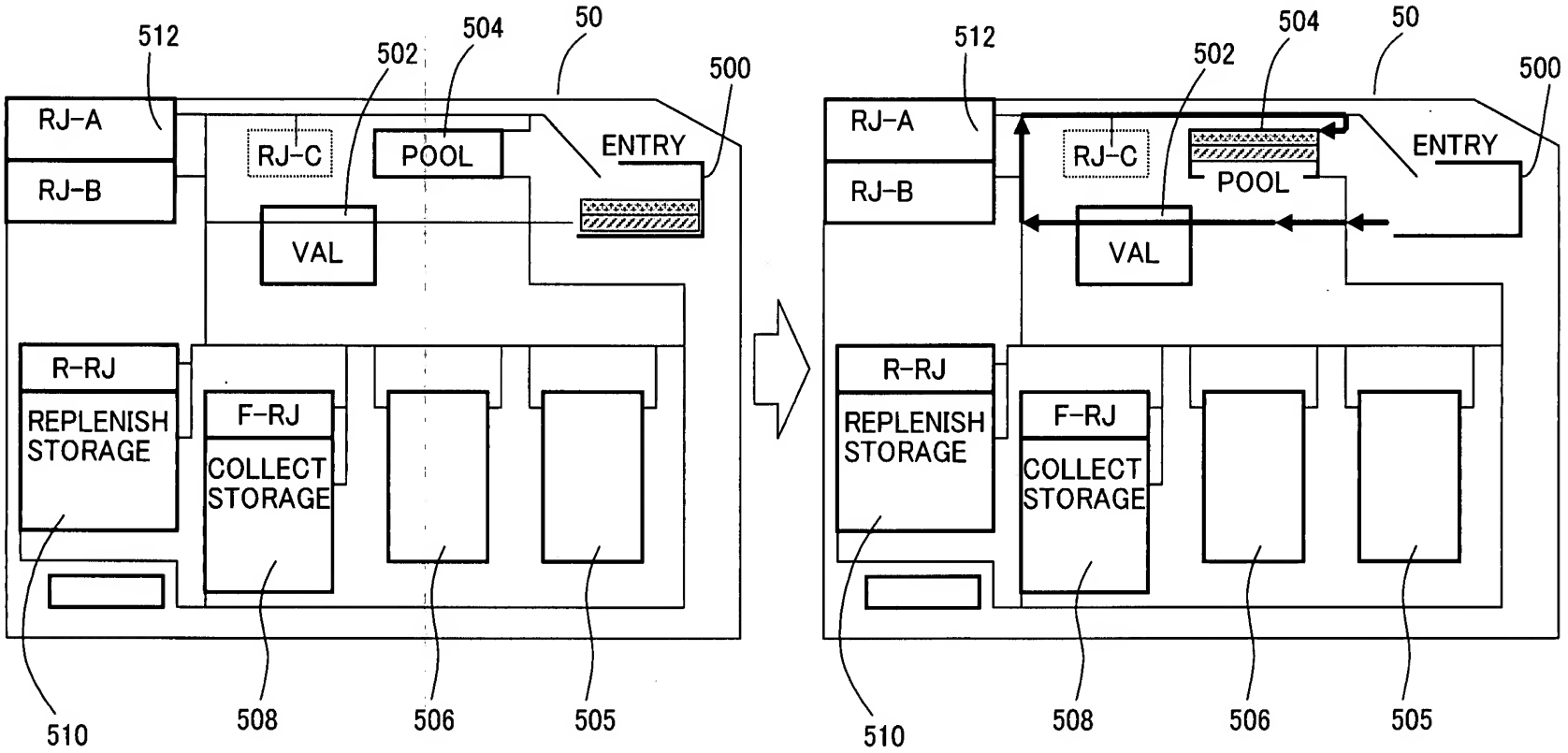

512
502
504
50
500
RJ-A
RJ-B
RJ-C
POOL
ENTRY
VAL
R-RJ
REPLENISH STORAGE
F-RJ
COLLECT STORAGE
510
508
506
505

FIG. 25

INITIALIZE	SPECIFY BASIC PARAMETER NECESSARY TO OPERATION OF INITIALIZE PROCESS IN PPR CLIENT
EJECT	SPECIFY NECESSARY PARAMETER WHEN EJECTING MEDIUM
PASSBOOK INSERT	SPECIFY NECESSARY PARAMETER WHEN INSERTING MEDIUM
FORCED EJECT	SPECIFY NECESSARY PARAMETER WHEN FORCE EJECTING MEDIUM
ISSUE	SPECIFY NECESSARY PARAMETER WHEN ISSUEING PASSBOOK/CUT FORM

FIG. 26

INITIALIZE	SPECIFY BASIC PARAMETER NECESSARY TO OPERATION OF INITIALIZE PROCESS IN RPR CLIENT
RECEIPT EJECT	SPECIFY NECESSARY PARAMETER WHEN EJECTING RECEIPT

FIG. 27

INITIALIZE	SPECIFY BASIC PARAMETER NECESSARY TO OPERATION OF INITIALIZE PROCESS IN JPR CLIENT

FIG. 28

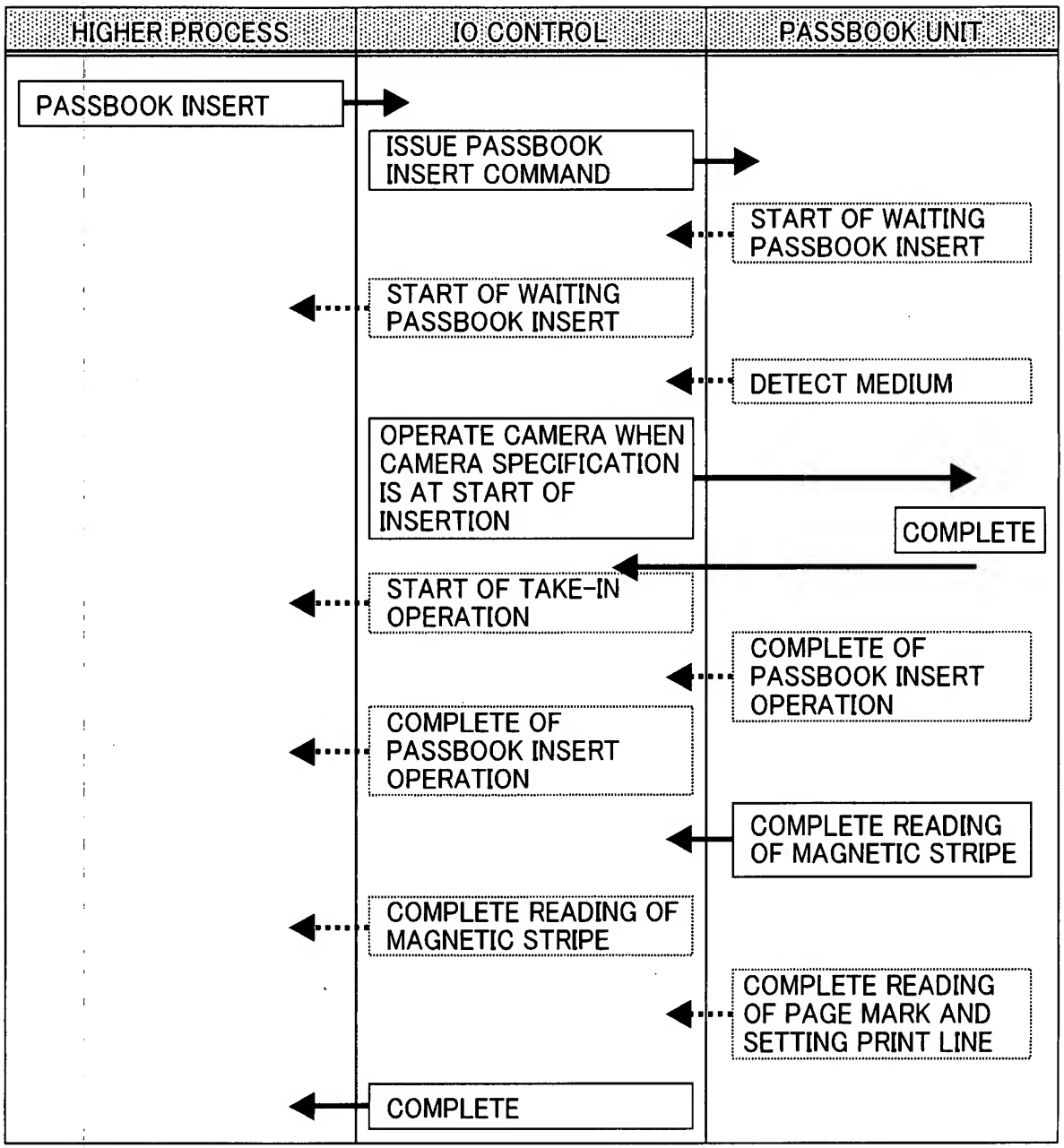

HIGHER PROCESS
IO CONTROL
PASSBOOK UNIT
PASSBOOK INSERT
ISSUE PASSBOOK INSERT COMMAND
START OF WAITING PASSBOOK INSERT
START OF WAITING PASSBOOK INSERT
DETECT MEDIUM
OPERATE CAMERA WHEN CAMERA SPECIFICATION IS AT START OF INSERTION
COMPLETE
START OF TAKE-IN OPERATION
COMPLETE OF PASSBOOK INSERT OPERATION
COMPLETE OF PASSBOOK INSERT OPERATION
COMPLETE READING OF MAGNETIC STRIPE
COMPLETE READING OF MAGNETIC STRIPE
COMPLETE READING OF PAGE MARK AND SETTING PRINT LINE
COMPLETE

FIG. 29

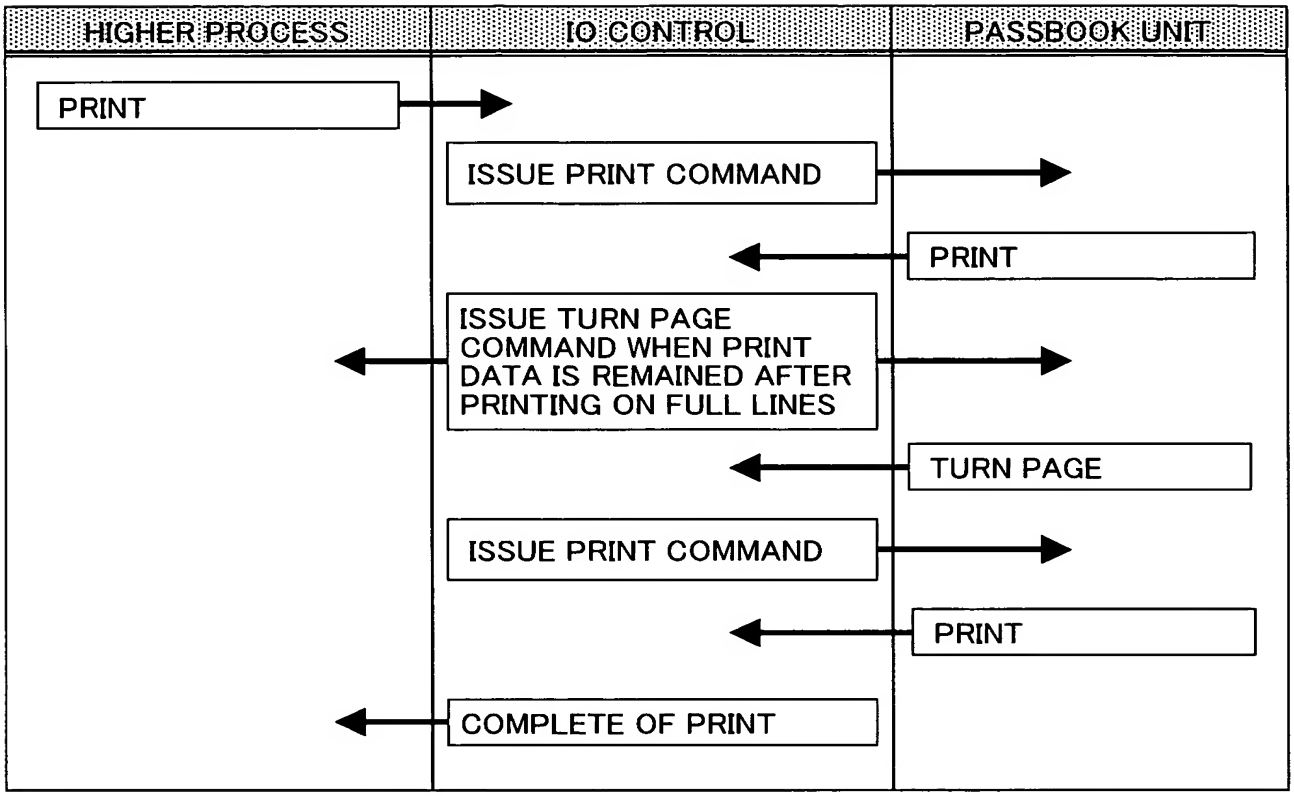

HIGHER PROCESS
IO CONTROL
PASSBOOK UNIT
PRINT
ISSUE PRINT COMMAND
PRINT
ISSUE TURN PAGE COMMAND WHEN PRINT DATA IS REMAINED AFTER PRINTING ON FULL LINES
TURN PAGE
ISSUE PRINT COMMAND
PRINT
COMPLETE OF PRINT

FIG. 30

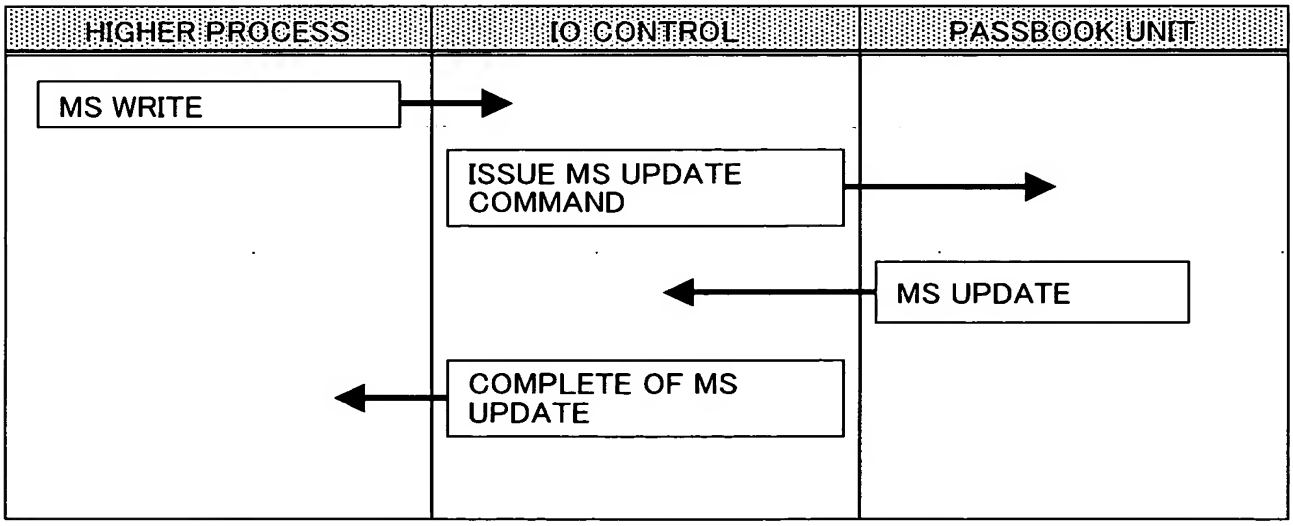

HIGHER PROCESS
IO CONTROL
PASSBOOK UNIT
MS WRITE
ISSUE MS UPDATE COMMAND
MS UPDATE
COMPLETE OF MS UPDATE

FIG. 31

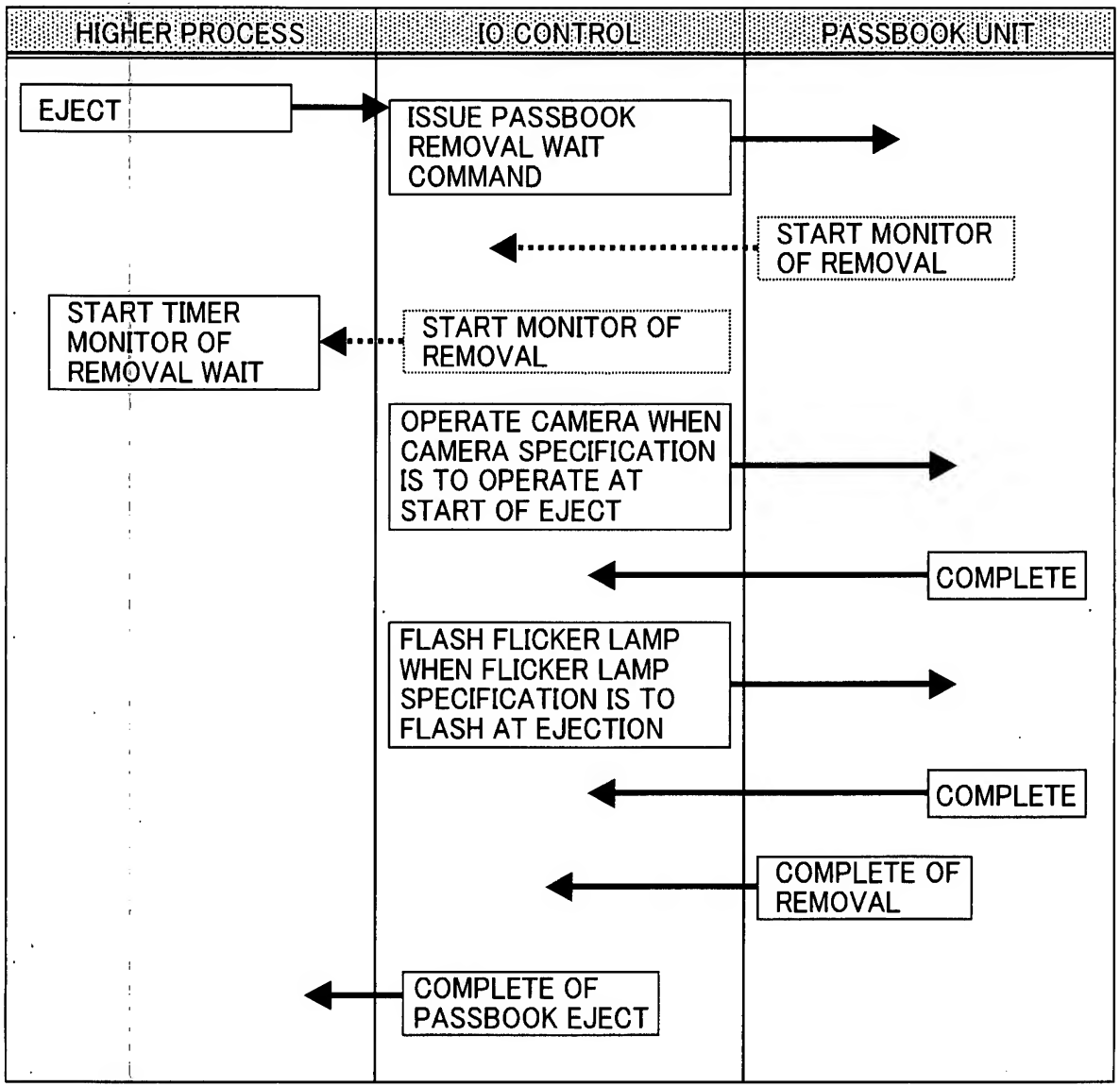

HIGHER PROCESS
IO CONTROL
PASSBOOK UNIT
EJECT
ISSUE PASSBOOK REMOVAL WAIT COMMAND
START MONITOR OF REMOVAL
START TIMER MONITOR OF REMOVAL WAIT
START MONITOR OF REMOVAL
OPERATE CAMERA WHEN CAMERA SPECIFICATION IS TO OPERATE AT START OF EJECT
COMPLETE
FLASH FLICKER LAMP WHEN FLICKER LAMP SPECIFICATION IS TO FLASH AT EJECTION
COMPLETE
COMPLETE OF REMOVAL
COMPLETE OF PASSBOOK EJECT

FIG. 32

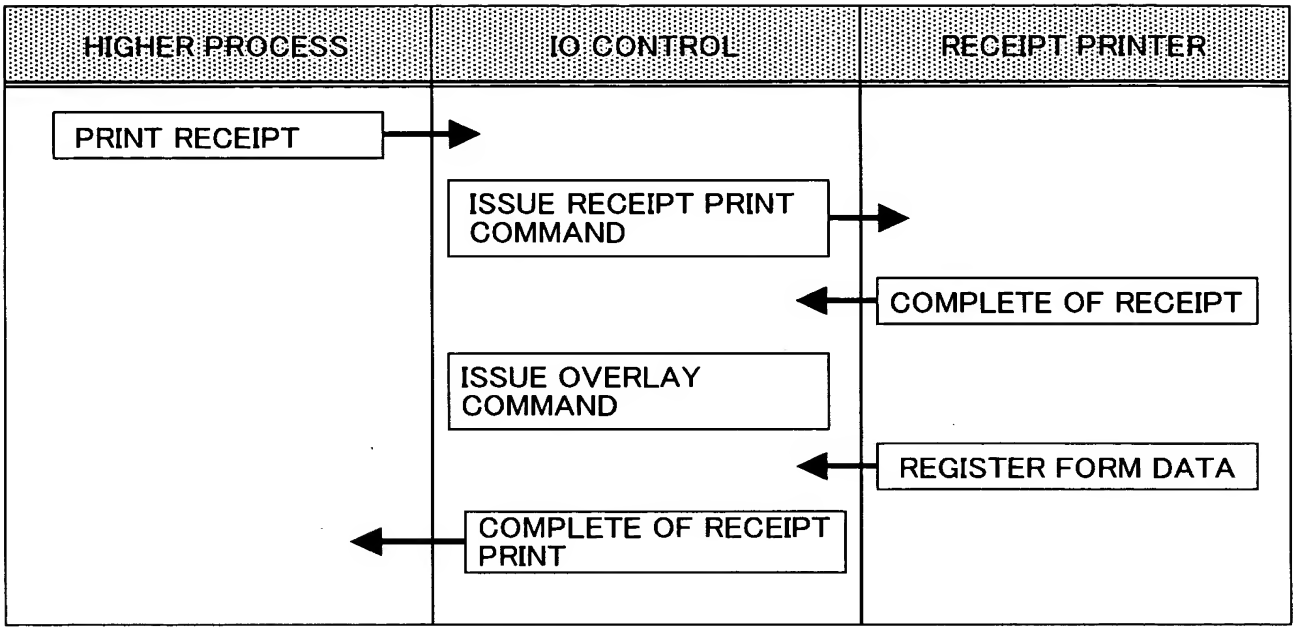

HIGHER PROCESS
IO CONTROL
RECEIPT PRINTER
PRINT RECEIPT
ISSUE RECEIPT PRINT COMMAND
COMPLETE OF RECEIPT
ISSUE OVERLAY COMMAND
REGISTER FORM DATA
COMPLETE OF RECEIPT PRINT

FIG. 33

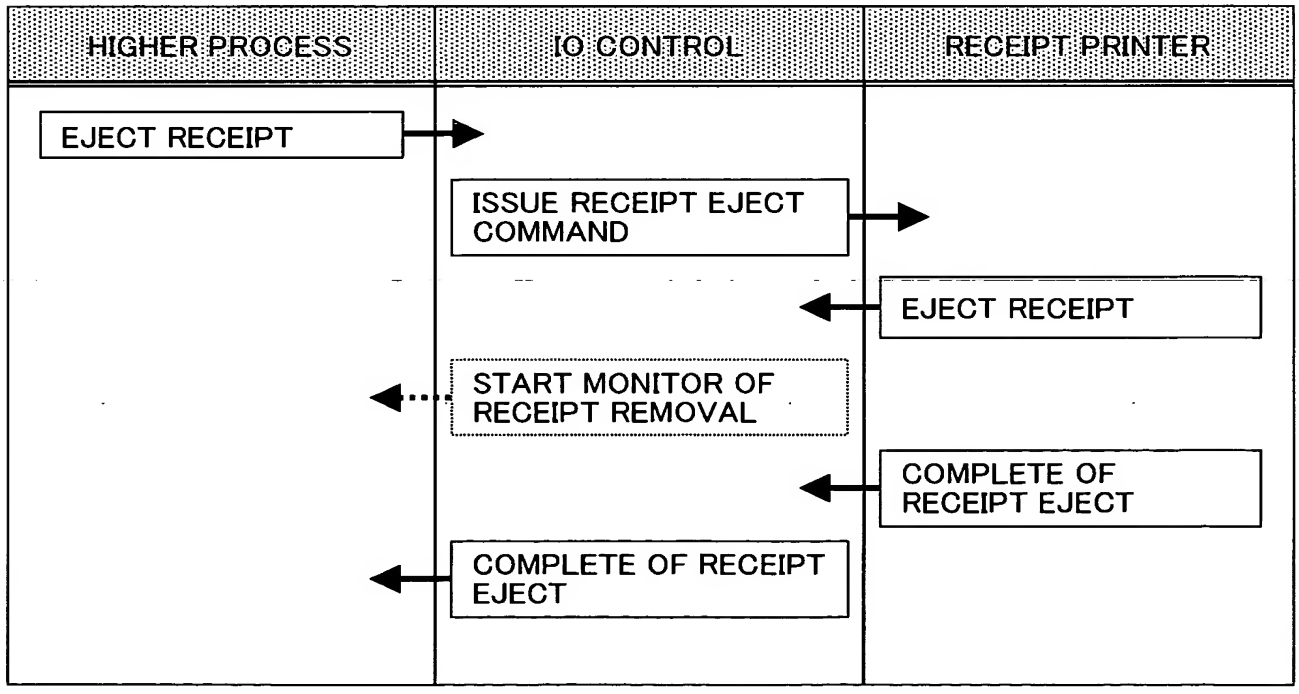

HIGHER PROCESS
IO CONTROL
RECEIPT PRINTER
EJECT RECEIPT
ISSUE RECEIPT EJECT COMMAND
EJECT RECEIPT
START MONITOR OF RECEIPT REMOVAL
COMPLETE OF RECEIPT EJECT
COMPLETE OF RECEIPT EJECT

FIG. 34

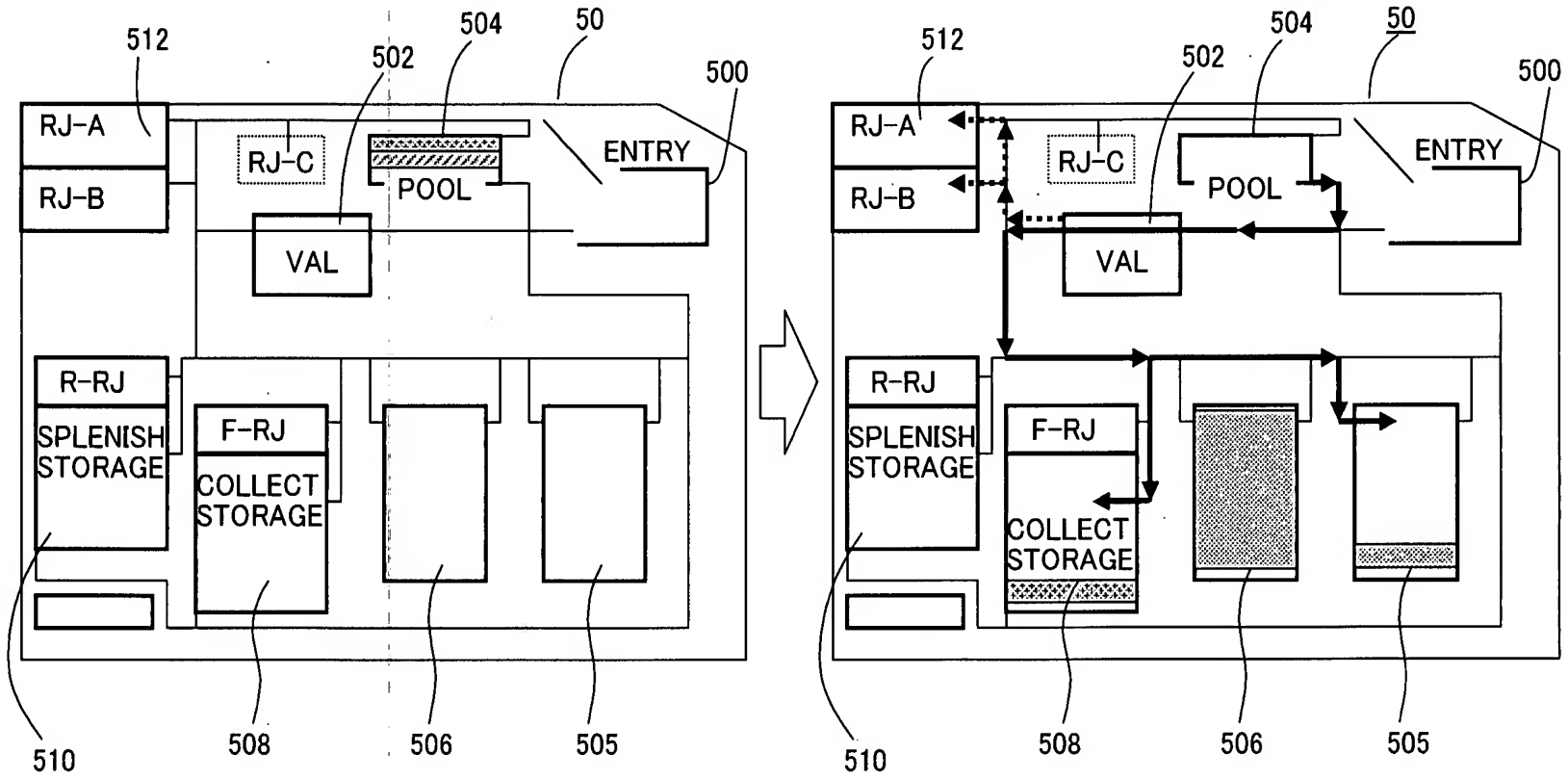

512
502
504
50
500
RJ-A
RJ-B
RJ-C
POOL
ENTRY
VAL
R-RJ
SPLENISH STORAGE
F-RJ
COLLECT STORAGE
510
508
506
505

FIG. 35

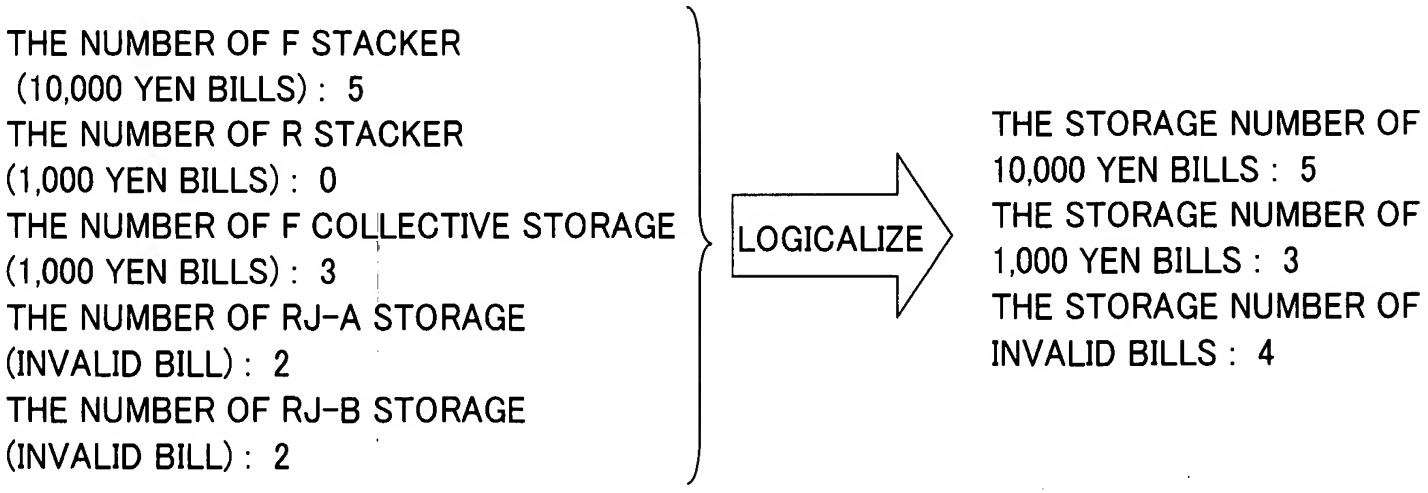
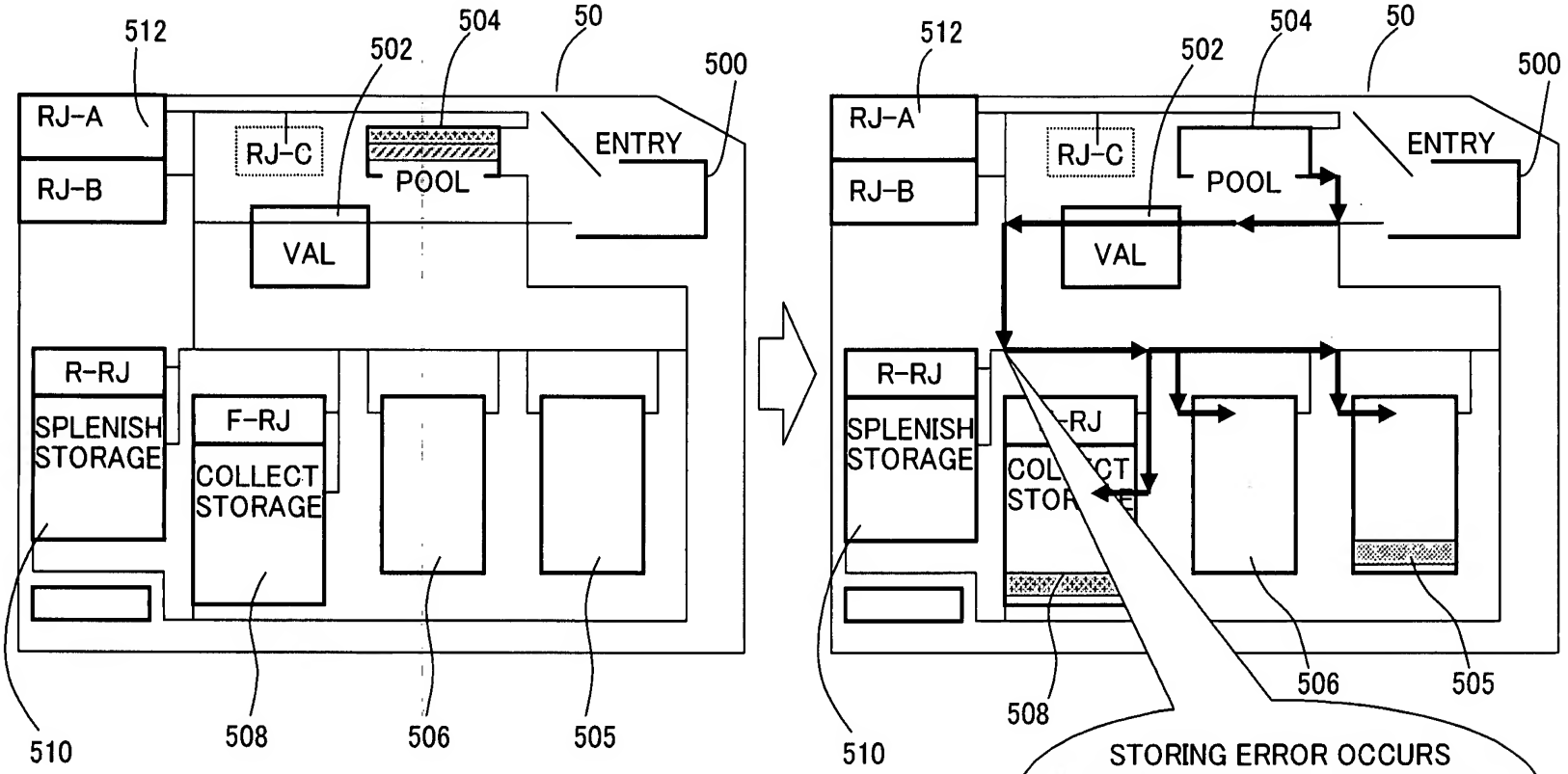

THE NUMBER OF F STACKER
(10,000 YEN BILLS) : 5
THE NUMBER OF R STACKER
(1,000 YEN BILLS) : 0
THE NUMBER OF F COLLECTIVE STORAGE
(1,000 YEN BILLS) : 3
THE NUMBER OF RJ-A STORAGE
(INVALID BILL) : 2
THE NUMBER OF RJ-B STORAGE
(INVALID BILL) : 2
LOGICALIZE
THE STORAGE NUMBER OF
10,000 YEN BILLS : 5
THE STORAGE NUMBER OF
1,000 YEN BILLS : 3
THE STORAGE NUMBER OF
INVALID BILLS : 4

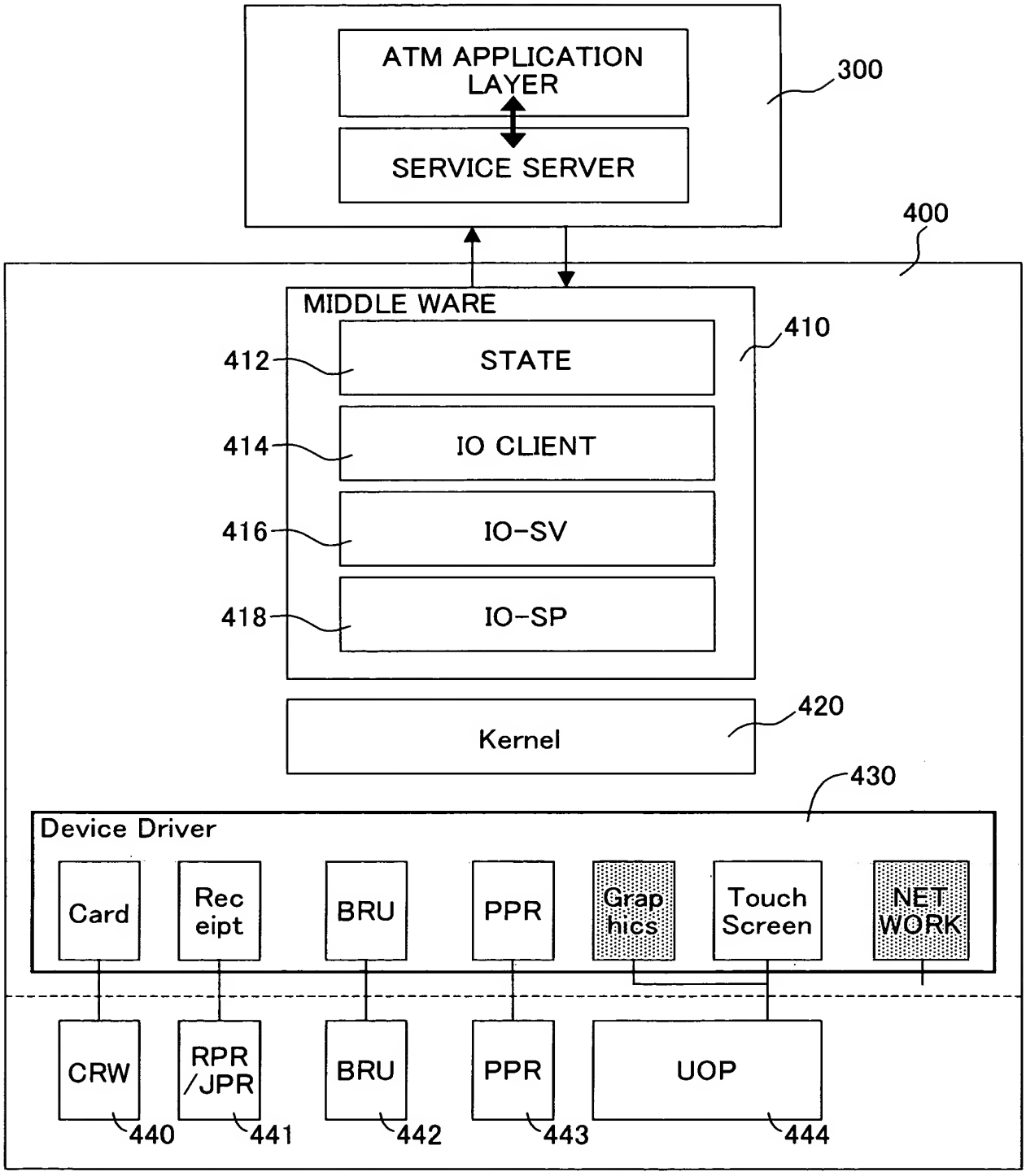
FIG. 36



MEDIUM RESIDUAL POSITION INFORMATION
- VALIDATE SECTION
- STORAGE TRANSPORT SECTION OF F BILL STACKER
- STORAGE TRANSPORT SECTION OF R BILL STACKER
- TRANSPORT SECTION OF F COLLECT STORAGE
- TRANSPORT SECTION OF VERTICAL DIRECTION

LOGICALIZE

MEDIUM RESIDUAL POSITION INFORMATION
DEPOSIT BILLS

FIG. 37

PRIOR ART